OUT OF PRINT

#4

N.A.A. BULLETIN

May 1960

In Three Sections
Section 1

Pros and Cons of Lease Financing

•

Accounting and Missile Base Operations

• • •

Services of Accounting in:

Labor Union • Insurance Company • Bank

N.A.A. BULLETIN

Vol. XLI No. 9 MAY 1960

Contents

Countdown Accounting Page

"OFF-SITE" COST CONTROL by JOHN B. MORGAN

Some interesting organizational and operating patterns have been developed in the relatively new area of establishing and performing cost control at off-site base operations in the "ever-expanding field of missilery." The very nature of these operations requires somewhat peculiar organization of cost control. So far as the experience of a company, presented in this article, discloses, the challenge has been readily met 73

Cost-Price Relationship

FUNCTIONAL COSTING IN A LIFE INSURANCE COMPANY by JOHN R. NEYREY

Increasingly, the life insurance industry is giving more consideration to cost accounting. The functional costing described here provides a valuable tool needed in planning, cost and price determination and in performance measurement. If it is developed on the basis of thorough analysis of all related activities, as depicted here, it also places at the disposal of the life insurance management an effective method of expense budgeting and control 37

On-the-Spot Control

AN INTEGRATED APPROACH TO CONTROL OF PRODUCTION COSTS

by WILLIAM L. FERRARA

Placing the accent on immediate action at the individual worker's and foreman's "lines of defense", the approach described by this author accords a merely summary role to the dollar variance report, the starting point of the conventional approach. The flow of control starts where action can be taken and, what is more important, the integrated approach effects a change in attitude for the better at all levels..... 63

This Bulletin is published monthly by the National Association of Accountants, 505 Park Ave., New York 22, N. Y. Subscription Price, $10 per year for members only. Second Class postage paid at New York, N. Y.

COPYRIGHT 1960 BY THE NATIONAL ASSOCIATION OF ACCOUNTANTS
(Founded in 1919 as the National Association of Cost Accountants)

Mutual Protection Page

CONSTRUCTION CONTRACTING WITH A COST-SAVING INCENTIVE by WILLIAM R. CLARK

Having had difficulties with both cost-plus and low-bid types of contracts, the company, experience of which serves as background of this article, introduced a modified form. The prime contractor's costs are evaluated separately for each of his two functions — running the job and subcontracting — and so are his bids. An incentive is also provided for by splitting the saving achieved in subcontracting. Supplemented with a practical labor and material cost control, this approach to contracting has proved satisfactory to all concerned 83

Labor Union Treasuries

FINANCIAL CONTROL IN LOCAL LABOR UNIONS by WADE B. SALISBURY

As in any other activity involving financial operations, accurate reporting that provides for control and information is a necessity of which labor unions are becoming increasingly aware. The author shows how common business principles and tools, such as built-in internal control and budgeting, can be successfully applied to local labor unions and also presents a chart of accounts and a complete set of financial statements developed for use by local unions 49

Digging Deeper

LONG-TERM LEASES AS A FINANCING DEVICE by CHARLES A. CARROLL

The validity of some widely held opinions on advantages and disadvantages of leasing as compared with purchasing is the subject of the author's discussion, which, in view of many often diverging considerations, disclosed in this article, suggests a careful approach to this problem, particularly in regard to the long-range effects on earnings and assets 19

Toward Further Progress

BANK ACCOUNTING — ITS PROBLEMS AND PROGRESS by WILLIAM H. WIELAND

A comprehensive review of current bank accounting practices is provided here, highlighting its problems and setting forth concepts and underlying conditions which are reflected in the considerable flexibility of accepted procedures. In addition, some of the more acute or prevalent problems are discussed from the broad viewpoint that bank accounting offers an opportunity, equal to that of other lines, in practical application of managerial accounting 5

Keeping Up to Date Page

CONDUCTING AN OVERHEAD STUDY

by STEPHEN LOIDL, JR.

As the author points out, overhead must be studied and restudied on a continual basis for, regardless of the costing system applied, its determination is an inherent part of costing procedures. How to conduct such a periodical overhead study in order to get up-to-date, accurate information which can be used in cost improvement is presented in this article 25

Forward Costing

COST PREVENTION FROM DESIGN TO PRODUCT

by LINN TELLANDER 34

— Lessons, Versions, Games and Details —

We Learned the Same Lessons by WILLIAM J. FOX 72

Can Technical Courses Educate?

by JAMES M. CARRITHERS 92

Our Version of Manpower Planning

by LEIGH S. DOYLE 47

Eliminating Waste Is Everyone's Job

by O. M. WILLIAMS 88

The Great Game of Cost Reduction

by JOHN W. MILES 90

Should the Accounting Supervisor Work with Detail?

by W. A. KIBLER 62

BEYOND THESE COVERS 94

Bank Accounting — Its Problems and Progress

by WILLIAM H. WIELAND

SOMEWHAT PARADOXICALLY, although banks are closely regulated, their accounting practices reflect a high degree of flexibility. This flexibility and its attendant lack of uniformity have been the subject of considerable concern. Faith and confidence of its customers are absolutely essential to a bank's existence; any accounting practices which might detract from its financial integrity may not only be embarrassing but actually harmful.

Some discussion of the concepts and conditions from which current bank accounting systems and procedures were evolved will develop a better understanding of the inherent problems. Progress in bank accounting during recent years has been both rapid and far-reaching. We do not have to look back very many years to see an industry in which cash-basis reporting was an accepted practice. All major banks now, of course, report on an accrual basis and many make effective use of such managerial accounting concepts as break-even earning rates, return on capital employed and functional analysis. We will review current practices and discuss in detail some of the more acute or prevalent problems. We will also show some practical applications of managerial accounting.

Bank Resources

A major problem of the commercial bank is the high liquidity and rapid movement of a large portion of its funds. The accounting system must furnish adequate information on a daily basis to assure full investment at all times. Consequently, banks are in a position to publish a statement of condition (balance sheet) as of any day on the day following the date of the statement. The statement of condition shown as Exhibit 1 (figures in this and subsequent exhibits are, of course, illustrative only) depicts a typical distribution of assets and liabilities. The valuation of a bank's assets requires intelligent imagination. The bank accountant must be able to visualize the possible detrimental effects of dogmatically applying historical accounting principles. Looking at the statement of condition, we see that a bank's resources are generally composed of the following principal parts:

WILLIAM H. WIELAND, Los Angeles Chapter, 1956, C.P.A., is Comptroller of California Bank, with which he has been associated for more than twenty years.

	Typical percentage of total resources
1. Cash and due from banks	18%
2. Securities	34
3. Loans	47
4. Fixed assets and other resources	1
Total resources	100%

STATEMENT OF CONDITION

RESOURCES

Cash and due from banks		$17 500 000	17.5%
Securities:			
U. S. Government securities	$27 000 000		
State and municipal securities	6 000 000		
Other securities	1 000 000		
Total securities		34 000 000	34.0
Loans:			
Commercial and industrial loans	$25 000 000		
Real estate loans	13 000 000		
Consumer loans	9 000 000		
Total loans		47 000 000	47.0
Other resources:			
Premises and equipment	$ 900 000		
Accrued interest receivable	400 000		
Miscellaneous resources	200 000		
Total other resources		1 500 000	1.5
TOTAL RESOURCES		$100 000 000	100.0%

LIABILITIES AND CAPITAL

Deposits:			
Demand	$62 000 000		
Time	30 000 000		
Total deposits		$92 000 000	92.0%
Other liabilities:			
Reserves for accrued expenses	$700 000		
Miscellaneous liabilities	300 000		
Total other liabilities		1 000 000	1.0
Capital:			
Capital stock	$3 000 000		
Surplus	3 000 000		
Undivided profits	1 000 000		
Total capital		7 000 000	7.0
TOTAL LIABILITIES AND CAPITAL		$100 000 000	100.0%

EXHIBIT 1

Cash and due from banks consists of currency and coin, reserve with Federal Reserve Bank, deposits with other banks and checks drawn on other banks which are not yet collected. Banks strive to keep these non-earning assets at a minimum, consistent with good banking practice. The largest is the reserve carried with the Federal Reserve Bank, which is based on percentages of demand and time deposits as established by the Board of Governors of the Federal Reserve System. The smallest is usually currency and coin on hand, which seldom exceeds two percent of deposits in large metropolitan banks.

Securities. Investments in securities are largely limited to bonds, most of which are United States Government obligations. These securities are for the most part readily marketable. However, the market price of a bond during its life is likely to vary widely due, primarily, to changes in interest rates, thus creating some interesting accounting problems pertaining to valuations. The prevailing practice is to state securities at amortized cost, as they are held for investment with no intention of selling them before maturity. While it is true that some reductions in the portfolio may be necessary from time to time, good management usually anticipates such situations through holdings of short-term securities. Furthermore, a bank's earning position actually improves in a market decline because of the general rise in interest rates. When the value of bonds declines for quality reasons, the valuation should be reduced to a conservative figure. However, if market value changes merely reflect interest rate fluctuations, the statement at market value has a strong suggestion of liquidation, which, in fact, is neither intended nor expected; consequently, such a suggestion should be avoided.

Loans. The development of a loan portfolio is probably the bank management task which requires the most skill and ability. The loan portfolio reflects to a large degree the basic nature of a bank, a blend of the objectives and purposes of the institution with the economy of the community which it serves. Loans are generally classified into three principal categories:

1. Commercial and industrial loans.
2. Real estate loans.
3. Consumer loans.

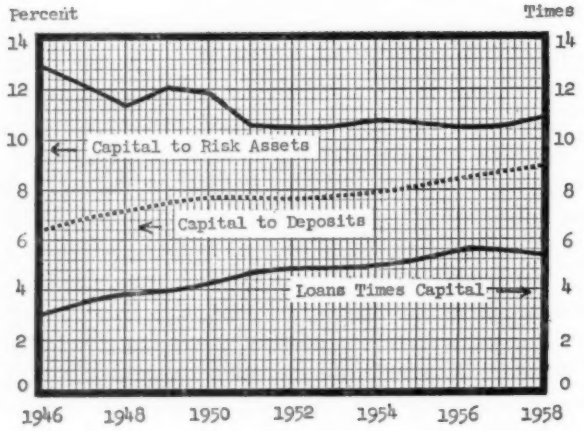
Loans usually have a market value even though they are often not readily marketable. They are shown usually at book value, net of any valuation reserves, in the statement of condition. No attempt is made to show (or even ascertain) the market value.

There are a number of tests used to place an administrative limitation on the aggregate amount which a bank invests in loans. The most widely used tests are (1) loans as a percentage of deposits and (2) loans times capital. These

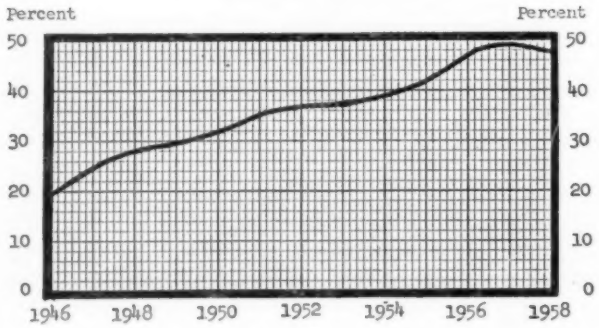
guides may vary over the years but a bank will generally be considered "loaned up" if loans are approaching 60 percent of deposits, particularly if they are also more than seven times capital accounts. Exhibit 2 is illustrative.

ALL FEDERAL RESERVE MEMBER BANKS IN THE UNITED STATES
1946 THROUGH 1958

Capital Adequacy Ratios



Ratio of Loans to Deposits



SOURCE: Data from Federal Reserve Bulletins and computation from such data.

EXHIBIT 2

Liabilities and Capital

Deposits. By far the largest liability of any bank is the total deposits which range from ten to twenty times capital accounts. There are two principal types of deposits: demand and time. The accounting treatment of amounts received for deposits is to record them as liabilities even though the items deposited are not actually collected until a later date. These uncollected items or "float" must, of course, be deducted from deposits to determine the amount of funds available for investment. The amounts of demand and time deposits related to total deposits are good indications of the nature of a bank. A bank with demand deposits equal to more than 75 percent of total is likely to be a "wholesale" bank specializing in corporate business. A bank with time deposits in excess of 50 percent is likely to have sizable "retail" business, consisting of real estate and consumer loans.

Capital Accounts. Practically all major banks have only one class of stock outstanding. Because of historical implications, banks are reluctant to issue any preferred stock. There are a few banks which have issued capital notes but these are very much in the minority. Normally there are three capital accounts only:

1. Capital stock. Par or stated value of shares outstanding.
2. Surplus. Paid-in surplus plus a portion of retained earnings (surplus is usually at least equal to capital stock because of certain restrictions applicable to payment of dividends).
3. Undivided profits. Retained earnings of the bank (generally available for dividends except that some states permit dividends out of the collected portion only).

Certain legal limitations are based on the aggregate amount of capital stock and surplus (generally the maximum loan to any one borrower may not exceed 10 percent of such aggregate amount). Therefore, it is usually advantageous to maintain these accounts at the highest practicable level. The advantages of higher limitations must be weighed against the problem of maintaining an adequate amount in the undivided profit accounts for the payment of dividends and the absorption of possible losses.

Capital Adequacy. Many banks are growing at a rate faster than their retained earnings and are periodically required to seek additional capital. While there is no final answer to the question of capital adequacy, it is generally agreed that the nature as well as the size of a bank's assets has an important bearing on the matter. It is recognized also that there are many intangibles (such as

STATEMENT OF INCOME AND EXPENSES BY FUNCTIONS

	Funds	Income & Expense Amount	Income & Expense % of Funds
Income from fund using functions:			
Commercial loans	$25 000		
Interest		$1 275	5.1
Expense		325	1.3
Net income		950	3.8
Real estate loans	13 000		
Interest		676	5.2
Expense		104	.8
Net income		572	4.4
Consumer loans	9 000		
Interest		855	9.5
Expense		360	4.0
Net income		495	5.5
Securities	34 000		
Interest		850	2.5
Expense		34	.1
Net income		816	2.4
Non-Earning assets	19 000		
Net income - funds used	$100 000	$2 833	2.8
Expenses of fund providing functions:			
Demand deposits Operating expenses	$63 000	$ 693	1.1
Time deposits	30 000		
Operating expenses		90	.3
Interest expense		720	2.4
Capital funds	7 000		
Total Expenses - funds provided	$100 000	$1 503	1.5
Net operating earnings - Before taxes		1 330	1.3
Income taxes		630	.6
Net operating earnings		$ 700	.7

EXHIBIT 3

the quality of management) which should be given consideration. Following are some general tests which bank management uses to judge the adequacy of capital, the application of which will vary widely, depending upon the nature of the bank and its management's philosophy (Exhibit 2 shows trends since 1946, in terms of these tests):

1. Capital vs. Deposits. This ratio is a very broad measurement. Generally, six percent is considered a minimum.
2. Capital vs. Loans. This ratio is important because loans present the largest source of losses. Most banks are not willing to allow loans to rise much above eight times capital.
3. Capital vs. Risk Assets. Risk assets are generally defined as total assets minus cash and United States Government securities. Usually, capital is not considered adequate if it is substantially less than ten percent of risk assets.

Bank Earnings

A bank's earnings are dependent upon its ability to obtain funds and to invest them in a manner which will produce a yield in excess of the cost of both obtaining and investing funds. There are three principal sources of funds (fund-providing functions): (1) demand deposits, (2) time deposits and (3) capital. The disposition of funds also falls into three categories (fund-using functions): (1) non-earning assets (cash, legal reserves, etc.), (2) loans and (3) securities.

Exhibit 3 shows typical results of a functional analysis of a bank's operations based on conditions in 1958. Actual results of individual banks will, of course, vary widely. The functional statement may be summarized as follows (percentages relate to total funds):

Net income from investing funds	2.8%
Cost of obtaining funds	1.5
Net earnings before taxes	1.3%
Income taxes	.6
Net earnings	.7%

An earning rate of .7 percent of total funds may appear rather meager but, (because of the high leverage) when related to capital, a 10 percent return on net worth is realized. The functional statement is by no means in wide usage; in fact, relatively few banks prepare these valuable statements even for internal purposes. The conventional earnings statement, such as one presented to share-

holders, has a substantially different format. Income and expenses are tabulated by major classifications, without reference to the fund-providing or fund-using functions shown in Exhibit 4. While there are variations as to the exact format, there is general agreement as to the contents of such a statement of earnings. "Net Operating Earnings" designates what (in bank terminology) is referred to as "the line"; the information preceding it is "above the line." Information "below the line" is considered nonoperating and may appear at the bottom of the earnings statement or, more frequently, as part of the reconcilement of capital. The below-the-line data is responsible for many bank accounting problems. The two major below-the-line items are (1) loan losses and recoveries and (2) security profits and losses.

Loan losses and recoveries. Major commercial banks use the reserve method of accounting for bad debts (actual losses on loans are charged and recoveries are credited to the reserve). Basically, additions to the loan reserves are representations of management's judgment but, undoubtedly, this judgment is tempered by the amount which may be deducted for tax purposes. Such deduction is limited by a United States Treasury Department formula which contemplates the establishment of a loss ratio. Computed by comparing actual net losses during each of 20 years with loans outstanding at the end of each year, the loss ratio is applied to loans at the end of the current year to determine the maximum amount which may be added to the reserve and deducted for tax purposes. The balance of the reserve (in further limitation) may not exceed three times the current year's addition.

Security transactions. There is a lack of uniformity among banks as to the treatment of security profits and losses. However, frequently the net result of the accounting entries is to credit profits, after taxes, to a valuation reserve and to charge the reserve with net losses. Banks hold securities for two purposes: (1) trading and (2) investment. Any profits and losses from trading transactions (securities held solely for sale to customers, with the expectation of a net profit) should be part of the current period's operating earnings and are usually so treated by major banks. Conversely, investment securities are generally acquired with the intention of holding them to maturity. (As mentioned earlier, securities held by banks consist almost entirely of bonds). There are, of course, occasions when securities are sold before maturity, with attendant profits and losses. Since these transactions are not part of normal operations, banks generally do not allow these profits and losses to pass through to the undivided profits account but, instead, lodge them in a reserve account, as is apparent from Exhibit 4.

INCOME STATEMENT

Operating income:			
Interest from loans	$2 806 000		63.0%
Interest and dividends from securities	850 000		19.1
Other operating income	800 000		17.9
Total operating income		$4 456 000	100.0
Operating expenses:			
Salaries	$1 450 000		32.6
Interest expense	750 000		16.8
Other operating expenses	926 000		20.8
Total expenses		3 126 000	70.2
Net operating earnings before taxes		1 330 000	29.8
Income taxes		630 000	14.1
Net operating earnings		700 000	15.7
Non-operating transactions:			
Bond profits (net of taxes)	$ 400 000		
Transfers to bond reserve	(400 000)		
	-0-		
Addition to reserve for possible loan losses (net of tax benefit)	50 000		
		50 000	1.1
Net income		$650 000	14.6%

EXHIBIT 4

Premium and discount. When a bond is acquired above par, banks amortize the premium; yet, when a bond is acquired at a discount, very few banks will correspondingly amortize the discount. Reasons given for not amortizing are (1) income tax treatment, (2) banking law, (3) rulings of supervisory authorities and (4) conservative accounting. Bonds of the type held by banks are sold at premiums or discounts to adjust the yield from the coupon rate to the going market rate. It appears logical for banks to reflect this yield in their earnings by reducing or increasing interest income through some method of allocating premium or discount.

If a bond is acquired at a premium or discount in the regular course of business (by the investment of new funds or through reinvestment of proceeds of maturing securities), then interest income should include an allocation of such premium or discount. Rulings of supervisory authorities may prevent the writ-

ing up of assets but this problem can be overcome by the establishment of valuation reserves equal to the discount amortized. The final result will be a more correct statement of operating earnings. If, however, a bond is acquired at a premium or discount by reason of an exchange for a similar bond, then neither the premium nor the discount should be amortized. From the date that a bond is originally acquired until its maturity, it will produce a definite number of dollars of interest income. If before maturity the bond is exchanged for a similar bond, the aggregate income will not be appreciably different and to change the amounts reported in the various accounting periods is to recognize form rather than substance.

Profit Planning

Virtually all banks do some kind of profit planning, ranging from informal cogitation by a small bank to the comprehensive product of a specialized department in a major bank. The accuracy of any such plan depends primarily upon the preciseness with which loans and deposits are forecasted. If these two items can be estimated with reasonable accuracy, other matters become relatively easy to predict. Deposits are, of course, less susceptible to management control than are loans. Since banks serve the entire business community, their deposits depend largely upon the status of the local economy which, in turn, is influenced by the broader economic picture. In addition, the success of a forecast of deposits depends upon an accurate appraisal of the money market and actions of the Federal Reserve Board.

Banks in growing communities are likely to find that there is a high correlation between their total deposits and the population in their service areas. If there is also a measure of business activity in the area, a combination of the factors of population and an index of business activity is very likely to produce an even higher correlation with deposits. Since projections of population and business are generally available, they become an integral part of forecasting deposits, particularly on a long-range basis. Effective short-range forecasts require use of seasonal indices and cyclical trends as well as the knowledge of any unusual circumstances of significance.

Break-even earning rate. In translating deposits into earning power, one very interesting and useful computation is the break-even earning rate. This rate states, in effect, the yield which must be received on loans and securities in order for the bank to break even. By adding the factor of planned profit to the computation, it becomes a simple matter to calculate the yield necessary to produce the desired profit. The mathematical equation for the break-even rate is:

$$\text{Break-even rate} = \frac{\text{Operating expenses less operating income other than interest}}{\text{Funds available for investment}}$$

We shall assume the following illustrative forecast data:

Salaries	$ 1,450,000
Interest on deposits	750,000
Other expenses	926,000
Total operating expenses	$ 3,126,000
Operating income other than interest	$ 800,000
Funds available for investment	$81,000,000

$$\text{Break-even rate} = \frac{3{,}126{,}000 - 800{,}000}{81{,}000{,}000} = \frac{2{,}326{,}000}{81{,}000{,}000} = 2.87\%.$$

Now let us assume a planned profit of $700,000.

$$\text{Required yield} = \frac{2{,}326{,}000 + 700{,}000}{81{,}000{,}000} = \frac{3{,}026{,}000}{81{,}000{,}000} = 3.75\%.$$

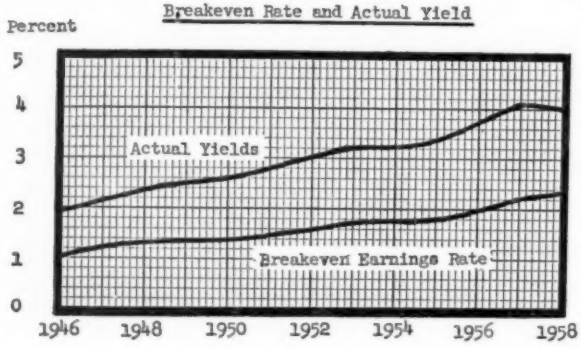
With this information, management is in a position to decide *a priori* on a realignment of the loan and bond portfolios capable of producing the required yield. Banks using the functional analysis of income and expense, as depicted in Exhibit 1, are in a better position to use this profit planning technique effectively. A well-prepared forecast will present management with the probable results of a number of thoroughly considered courses of action.

The break-even earning rate is also a useful device in long-term analysis. As in every other business, operating costs in banks have increased substantially since World War II. During the postwar period, the break-even earning rate has been constantly increasing. Exhibit 5 depicts also the extent to which banks have changed their investment mix and the increase in yields realized. This is not meant to imply that banks have realigned their portfolios solely in response to increased operating costs, but this factor has undoubtedly some influence.

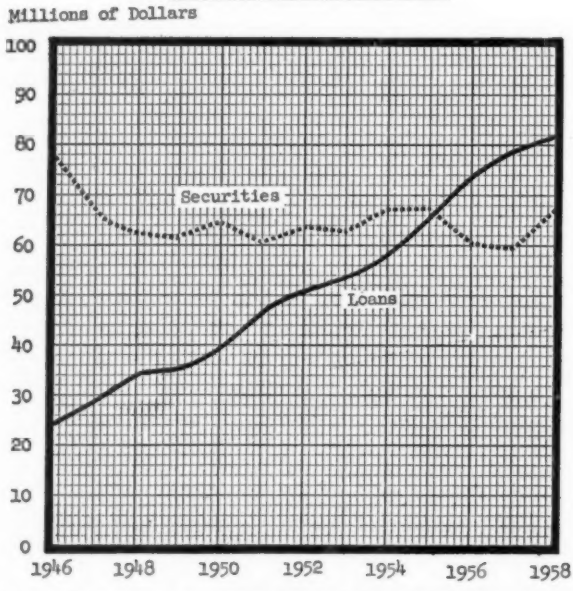
Return on capital employed. Capital employed usually means total assets used in a business, regardless of sources. However, in banking the concept is generally restricted to shareholders' equity and is particularly useful when applied to earning performances of branch offices. Two branches may have identical deposits and thus have the same amounts of funds available. However, one branch may have much higher earnings because its loans equal 80 percent of its deposits while loans of the other branch may equal only 20 percent. Management

ALL FEDERAL RESERVE MEMBER BANKS IN THE UNITED STATES
1946 THROUGH 1958

Breakeven Rate and Actual Yield



Average Loans and Securities



SOURCE: Data from Federal Reserve Bulletins and computations from such data.

EXHIBIT 5

needs some sort of common denominator in order to make meaningful comparisons of earning power.

As indicated earlier, the adequacy of capital (shareholders' equity) is measured by the nature as well as the size of a bank's assets. This measure is generally expressed as a percentage of the various assets, i.e., loans may require capital equal to 10 percent but bonds may require only 4 percent. The following example demonstrates a practical application of this concept:

	Measure of capital required	*Branch A*		*Branch B*	
		Assets	*Capital required*	*Assets*	*Capital required*
Cash and other non-earning assets	0%	$ 20,000	$ —	$ 20,000	$ —
Loans:					
Commercial	12	50,000	6,000	10,000	1,200
Real estate	8	20,000	1,600	5,000	400
Consumer	12	10,000	1,200	5,000	600
Other funds (invested by head office in securities)	4	—	—	60,000	2,400
Totals		$100,000	$8,800	$100,000	$4,600

If we assume that Branch A earns $1,200 and Branch B $500, the following comparisons may be made:

$$\frac{\text{Earnings}}{\text{Capital required}} = \text{Return on capital}$$

Branch A $\frac{\$1,200}{\$8,800} = 13.6\%$ Branch B $\frac{\$\ 500}{\$4,600} = 10.8\%$

The use of return on capital employed is not limited to comparisons of branch performance. It may be used to appraise the feasibility of proposed locations and the relocation or closing of existing locations (prudent pruning is sometimes as important as expansion). The concept is also useful in the evaluation of earning power of functions on a bank-wide scale.

Budgets

As in many other service industries, banks have been reluctant to adopt formal budgetary programs. However, with the demands for banking services growing in complexity as well as in volume, the usefulness of this valuable management tool is becoming increasingly apparent.

Budgets are sometimes used solely as expense control devices, but many of the major banks consider the budget as the expression of a complete profit planning program, covering deposits, loans, income, expenses, and capital expenditures. Although banks have very few homogenous identifiable units of service to sell, many of the benefits of budgeting are available to them (i.e., a cohesive and coordinated plan, evaluation of performance, etc.). The bank budget administrator is faced with many problems of which two of the most important are (1) developing standards of performance and (2) improving techniques of forecasting.

The Future

As in practically all other areas of business, banking is placing increasing emphasis on managerial accounting. With the advent of electronic data processing equipment, this trend is likely to be accentuated. A great deal of basic research remains to be done, but the prospects for progress in bank accounting were never better.

Long-Term Leases as a Financing Device

by CHARLES A. CARROLL

THE USE OF LEASES as a form of financing is not a new development in business. It has been only since the adoption of the Federal Income Tax that it has undergone a tremendous growth, both in the dollar amounts outstanding and in force and the varieties of forms available. In relation to the use of long-term leases as a financing device for obtaining the use of property, the following arguments may be developed:

1. Companies owning property must recover their cost plus a return on their investment in that property, regardless of the method used.
2. The companies leasing property will pay a return on the investment, either as an added cost of the property or as dividends to their own stockholders.
3. No method is as cheap, in the immediate dollar amount involved, as a cash purchase.
4. The goal of management should be to maximize profits on a long-range basis which will be consistent with the growth plans of the company and within the limitations of the economy.
5. Therefore, leasing or purchasing property should be considered in relation to the long-range effect on earnings and costs to the company, after taxes and dividends.
6. Any method of presenting the advantages or disadvantages of leasing versus purchasing should be examined for "window-dressing" or an attempt to cover a lack of knowledge or appreciation of the economic factors involved.

Return on Investment Considerations

The tremendous increase of the value of real estate owned by life insurance companies in recent years may be used as a guide to the growth of the use of leases, but it does not mean that leasing of property is limited to life insurance companies, since many companies have been formed for the purpose of engaging in lease financing. This brings us to one of our basic premises, that

---

CHARLES A. CARROLL, Cleveland Chapter, 1946, is Head Accountant at American Greetings Corporation, Cleveland, Ohio. Currently, he is a lecturer in Accounting at Baldwin Wallace College, Berea, Ohio. Mr. Carroll is a graduate of Western Reserve University and holder of B.B.A. and M.B.A. degrees.

the form of the transaction in acquiring a property makes very little difference as to its disposal at a profit. At this point, it must be pointed out that the profit may take several various forms, and may show in the accounting records of the user or consumer as an expenditure in any of several forms: as dividends on common or preferred stock, bond interest, mortgage interest, interest on a term loan or other loan arrangement or an additional payment added to the lease rental. If it shows on the accounting records as an expense which is deductible for income tax purposes, it will serve to reduce those taxes.

It is this reduction of income tax which is frequently pointed out as being one of the major advantages of leasing property over the ownership of property. But, just as the total lease rental payment may be deducted for income tax purposes, the total cost of property acquisition may be deducted, either through depreciation deductions or as charges to interest or some other expense account. If the cost appears on the books of the user as dividends on stock it will not be deductible for income tax purposes but will still be considered a cost of obtaining the capital required to negotiate the purchase of the property involved.

Do Not Take the Feasibility of Financing Methods at Face Value

This brings us to another of our basic premises, that the cost of obtaining capital funds must be taken into consideration in the computation of what form of financing to use in the acquisition of property for business use. This might possibly lead us to the conclusion that the cheapest form of financing must be considered the best form. But we must remember that the cheapest form of capital funds is not always the best (Soule, Roland P., "Trends in the Cost of Capital," *Harvard Business Review*, March-April, 1953, pp. 33-47).

It might be agreed generally that a purchase for cash would be the cheapest method of acquiring property. This is true in that it involves the outlay of the smallest amount of money at the time of purchase. But when we look to the long-range profit picture and growth pattern in order to determine the cheapest form of capital for financing property acquisitions, it might appear that a cash purchase would be the most expensive method.

To illustrate one method of determining the best form of financing the acquisition of property, Exhibit 1 has been set up. This is a simplified and exaggerated illustration, but should serve to show the pattern of differences between lease financing and cash purchase of property with equity financing. In this we assume a corporation with $500,000 in total assets which pays 40 percent of profit after taxes as dividends, securing property by leasing and by cash purchase valued at $100,000. We have also assumed a lease rental of $10,000

COMPARATIVE NET CASH EARNINGS
LEASING VERSUS OWNING

LEASING

Cash balance	10% Gross income	Lease Rental	Lease Int.	50% Income tax	40% Div. paid	Net cash earned
500,000	50,000	10,000	5,000	17,500	7,000	10,500
510,500	51,050	10,000	4,500	18,275	7,310	10,965
521,465	52,146	10,000	4,000	19,073	7,629	11,444
532,909	53,291	10,000	3,500	19,895	7,958	12,446
544,847	54,485	10,000	3,000	20,742	8,297	12,446
557,293	55,729	10,000	2,500	21,615	8,646	12,968
570,261	57,026	10,000	2,000	22,513	9,005	13,508
583,869	58,377	10,000	1,500	23,439	9,375	14,063
597,832	59,783	10,000	1,000	24,392	9,756	14,635
612,467	61,246	10,000	500	25,373	10,149	15,224
627,691	553,133	100,000	27,500	212,817	85,125	127,691

OWNING

Cash balance	10% Gross income	Dept.	50% Income tax	40% Div. paid	Net cash earned
500,000					
100,000*					
400,000	40,000	10,000	15,000	6,000	9,000
409,000	40,900	10,000	15,450	6,180	9,270
418,270	41,827	10,000	15,914	6,365	9,548
427,818	42,782	10,000	16,391	6,556	9,835
437,653	43,765	10,000	16,883	6,753	10,130
447,783	44,778	10,000	17,389	6,956	10,433
458,216	45,822	10,000	17,911	7,164	10,747
468,963	46,896	10,000	18,448	7,379	11,069
480,032	48,003	10,000	19,002	7,600	11,402
491,434	49,143	10,000	19,572	7,828	11,744
503,178	443,916	100,000	171,959	68,781	103,178

* Property purchased for cash.

EXHIBIT 1

per year plus 5 percent interest on the beginning balance each year, and the use of the straight-line method of depreciation. Under the lease-financing, in a ten-year period the company moves from the position of $500,000 in total assets to that of $627,691 in total assets, an increase of $127,691. During the same period, this company has paid a total of $212,817 in income taxes and $85,125 in dividends to stockholders. Under property ownership, the com-

pany finishes the ten-year period with $503,178 in total assets, an increase from the beginning position of only $3,178. Under this method the company paid a total of $171,959 in income taxes and $68,781 in dividends.

From this comparison we may see that the cash purchase, with recovery of the total purchase price through depreciation, leaves us with a much smaller net increase in total assets. At the same time, the company has reduced its income tax burden considerably, but at the expense of total earnings. Under lease financing, the company ends the ten-year period in a much better financial position, with $627,691 in total assets and, at the same time, has paid $40,858 more income taxes and $16,344 in dividends.

A first examination of these figures would seem to indicate that lease financing would be better. This would also seem to run counter to the arguments that leasing will reduce income taxes. However, we must continue our examination, especially in relation to the assumptions upon which this computation is based.

By preparing further tables but with the various elements computed upon different bases, we would obtain quite different results. Thus, in an actual situation, we must use the elements which apply to the specific situation and not be led astray by sales literature, general assumptions or conclusions drawn from situations entirely different from the one under examination. It is the responsibility of management to obtain figures which would show comparative results, taking into consideration all of the factors which are felt to be important. Too often, management repudiates its responsibilities or is led into a decision based upon a single article in a magazine, as a result of a lack of knowledge of how to compute the net result on the company's long-range operations.

This discloses an advantage of lease financing that is not mentioned in the many articles favoring this method, namely, since all factors and costs are reflected in the profit and loss statement of the company, they are available for review and comparison while costs and effects which are hidden in the equity capital structure over an extended period of time are much more difficult to comprehend or to include in cost comparisons and computations.

When Scrutinized, Advantages May Prove Less Appealing

Many of the apparent and well advertised advantages of leasing and of the use of the sale-leaseback technique for financing property lose must of their appeal when examined more closely. Among the advantages of this type is the questionable one of the "tax reduction" which, as pointed out before, carries

with it a corresponding reduction in profits to the company. In addition to this, under our present tax structure and within the framework of lease-financing versus ownership, it is only possible, by using differing financing methods, to postpone or delay payment of taxes and not to reduce or eliminate them, except by the permanent lowering of profits.

As shown in Exhibit 1, the financing method which produced the greatest tax liability also produced the greatest profits and gain in total assets, even though this method involved what appears to be the most expensive method of financing.

Another advantage of lease-financing is that the borrowing or debit-incurred capacity of the company is retained for other purposes and the company is able to avoid heavy debt involvement and creditors' restrictions. But this advantage is losing much of its weight as pointed out in a recent article (Vancil, Richard F. and Anthony, Robert N., "The Financial Community Looks at Leasing," *Harvard Business Review,* November-December, 1959). In their article, it was shown that many of the institutions which handle leases and sale-leaseback financing are beginning to look at leases as long-term debt in their examinations of financial statements of leasing companies.

Leasing is also said to have the advantage of not placing the company under legal restrictions in connection with either future debt or equity financing and, likewise, of avoiding the provisions of existing restrictions (Cary, William L., "Sale and Lease-back of Corporate Property," *Harvard Business Review,* March, 1949). Thinking along this line is springing up in the financial planning of cities and may be expected to spread to other governmental planning. In the case of cities, the use of leasing removes the necessity of presenting bond issues to the voters for approval, and permits the governing unit to commit itself under present laws for the lease-purchase of capital facilities. The future development of this advantage seems somewhat doubtful as more careful analysis and thinking are brought to the subject. It may develop, as Vancil and Anthony suggest, that financial institutions and others will look further into this and begin to treat long-term leases as debt, when considering new leasing or capital financing.

A factor which should be considered before making a final decision either to lease or purchase is that of the company's attitude toward the property after the lease period. Some authors suggest that the company would wish to hold title to the property without the need for lease renewals and additional lease rentals, in order to obtain the use of the residual value and productive life of the property (Rekstis, W. J., Jr., "Pay-As-You-Depreciate Is Superior to Leasing," *Commercial and Financial Chronicle,* July 19, 1956, p. 282). Other au-

thors take the opposite position and suggest that leasing would protect the company against making wrong guesses as to the future (Jones, Thomas M., "Leasing: Sales-Maker in '56?" *Printers' Ink,* September 30, 1955) and would enable the company to obtain only the property needed for current requirements. The reconciliation of these viewpoints would remain the responsibility of management and would become a part of the total decision to lease or buy.

An advantage of leasing, which is losing much of its force, is the failure of the accountants to report any lease liabilities on the financial statements of the companies concerned. A "first" in this was recently reported in the *N.A.A. Bulletin* by K. R. Rickey (Rickey, Kenneth R., "Including All Leases in the Balance Sheet—A First," *N.A.A. Bulletin,* December, 1959, pp. 51-60). Reporting of lease liability on financial statements may be considered an acceptable accounting procedure, since it may be construed as a form of the disclosure required in Accounting Research Bulletin No. 43 of the American Institute of C. P. A.'s.

Costly Mistakes May Be Avoided

Our approach and reaction to the numerous listings of the advantages and disadvantages of leasing as compared with purchasing will be governed by a great many factors. In this paper, we have attempted to discuss briefly some of the factors and views that we feel to be important in the consideration of this problem and have reached the following conclusions: (1) leasing and lease-purchase or sale-leaseback are methods of financing the acquisition of property for use by a business concern, (2) the goal of management is to maximize the long-range profits of the company within the limits of our economy, (3) many of the proposed advantages and disadvantages of leasing are not entirely valid, (4) therefore, in considering the use of leasing as a financing device, careful consideration must be given to the long-range effects on earnings and assets of the company. Without this, costly mistakes may be made, and not detected for many years in the future.

Conducting an Overhead Study

by STEPHEN LOIDL, JR.

THE COST OF A PRODUCT, generally, is not a simple, precisely calculated amount. Its determination is based on many allocations, some of which, by necessity, are extremely arbitrary. Despite these shortcomings, the computation of a product's cost is vitally necessary for the proper operation of an enterprise; without individual product costs a company would have no logical basis for such important business considerations as the selling price of its products, the profitability of a product or a homogenous group of products, the profitability of the entire business, the valuation of its inventory, etc. It follows, then, that periodic product cost determinations of some sort are mandatory for a going concern. Furthermore, it is increasingly important to make such cost determinations with as great a degree of accuracy as possible, since the more exact the determinations the greater the reliance that can be placed on decisions resulting from their use.

The direct costs, productive labor and material, ordinarily create few problems of allocation; they are generally measurable and can, therefore, be charged directly to the product being costed. It is the overhead element which requires certain arbitrary decisions in applying it to specific products.

Preliminary Considerations

In a broad sense, overhead means all of the operating costs of a business that cannot be allocated in a straightforward manner directly to the manufactured product. In other words, it represents all indirect expenses. This does not mean, however, that all indirect expenses must be allocated to a product to arrive at its inventory valuation. Actually, only indirect manufacturing expenses should be allocated for this purpose. And, even then, all indirect manufacturing expenses may not be considered properly allocable. It depends upon the cost accounting method followed—direct cost or absorption cost—as to which indirect manufacturing expenses will be considered allocable in arriving at an inventory cost.

STEPHEN LOIDL, JR., C.P.A., Trenton Chapter (Philadelphia, 1952), is Assistant Controller of Leeds & Northrup Company, Philadelphia, and Treasurer of the Company's subsidiary, Leeds & Northrup, Canada, Ltd., Toronto. Prior to joining his company in 1956, he was a Manager on the Philadelphia staff of Lybrand, Ross Bros. & Montgomery with which firm he was associated for over 18 years.

At this point, it is necessary to call attention to the fact that, before overhead can be applied to a product, there are many preliminary considerations. First of all, methods of allocating fixed expenses, such as depreciation, real estate taxes, insurance, etc., to all cost centers, direct and indirect, must be reviewed and amounts re-allocated where necessary. Then, the indirect operating expenses must be segregated into (1) manufacturing expenses divided into those necessary to arrive at an inventory cost (either direct cost or absorption cost) and all others, (2) costs arising from the development of new products, (3) expenses incurred in selling and distributing products to customers and (4) general expenses resulting from the overall administration of the business. In many companies all other overhead is also allocated in some manner to arrive at the "full" cost of a product.

Even though a company has adopted direct costing for accounting and pricing purposes, many managements feel that, from time to time, they should know the total manufactured cost and/or total full cost of their products. Among other things, this is necessary to evaluate the extent to which each product is carrying its full share of the overhead load. Consequently, every company desiring to have such information must periodically conduct a detailed overhead study which will provide, first, for a segregation of all overhead expenditures as outlined above and, second, for a method or methods of allocating these costs to the inventory cost of products manufactured.

Because of the many intricacies involved, an overhead study should be undertaken or supervised by someone keenly aware of generally accepted accounting practices. He should also be well-versed in cost accounting principles and procedures. If the individual making the study does not know which expenditures should be allocated to the product to arrive at an inventory valuation and which may be excluded, the conclusions which might be derived from such a study would be useless. Also, the surveyor must be aware of the fact that, if his recommended procedures for allocating overhead deviate from those previously used to any large extent, the results might require the company's public accountants to take exception to the new inventory valuation procedures because of their inconsistency. It is conceivable that the new procedures, although inconsistent, may result in a betterment of the costing and valuation procedures. Under such circumstances it is probable that the public accountants will concur with the use of the better method, thus giving their blessing to the inconsistency. However, this should be known before the new procedures are adopted.

There are many other reasons why an accounting background is desirable for such a study. Perhaps the most important one is that an accountant would be most familiar with the general behavior of overhead expenditures. Also, he

would be most familiar with the methods used by his company to accumulate them. Consequently, he should know how to obtain all the necessary data and how to complete the study with minimum of effort.

Before an overhead study gets under way there should be a clear understanding on the part of the person in charge of the study of what is required and the probable use of the end result. He should be aware of the fact that manufacturing overhead rates developed may be used for many purposes. A few of the uses are:

1. Pricing of inventory.
2. Establishing of selling prices, price reductions or price increases.
3. Make-or-buy decisions.
4. Profitability studies which might result in the elimination of a product from the line or an entire product line, construction of new buildings, relocation of factories, etc.

Being aware of the various uses of the overhead study, the surveyor should sense the importance and magnitude of the job ahead. To be certain that the study will be performed in a logical manner and concluded at a reasonable time, a timetable should be established which would indicate and schedule the various steps necessary to complete the study.

A complete review of the various production cost centers should then be made before the study progresses too far. It is important, at the outset, that area boundaries be well-defined and that each center performs homogenous work. If this is not true, present boundaries, costs, etc. will have to be split, to form two or more production centers, or combined, if a survey so dictates, for proper overhead rate determinations. Such a review requires an intimate knowledge of the factory areas, products and the various manufacturing operations required.

Relationship to Direct Labor and Material

The surveyor should be alert to procedure changes which are necessary or have already taken place since the last study was completed. Although an overhead study generally is related to overhead expenditures, the surveyor should not overlook the fact that there may be inaccuracies with respect to direct labor and direct materials as they are now being charged to products. For example, service cost centers, such as engineering and inspection, in some instances should be treated as productive cost centers. This is especially true in companies which manufacture nonstandard products. If the products ordered by customers require

modifications in engineering design, it is entirely possible that more accurate costing will result from charging engineering to a job as direct labor rather than as part of an allocated overhead, particularly if the engineering department spends considerable time in connection with each modification. Also, if inspection is required to a large extent, the inspection time incurred could be charged directly to the product involved. With respect to engineering expenditures other than productive labor, it is important to know if the engineering department includes in its functions services the costs of which should not be included in the factory overhead pool. These costs should not be charged against the manufacturing cost of the product at all but, rather, they should be treated as marketing, research and development or other appropriate costs.

A review of the procedures relating to time allowances for machine breakdowns, dull tools, etc. might bring to light that the labor with respect to such occurrences is being entirely included in job costs rather than being charged to an indirect labor or a variance account. Also, the direct labor practices as they relate to spoiled materials, should be reviewed to make certain that labor costs related to spoilage are not included, without a good reason, in the direct cost of a product finally completed.

A review of the reporting procedures for materials requisitioned from the storerooms is also necessary in order to be certain that only those materials necessary to produce the items being manufactured are charged to the job cost. Naturally, items not easily measured, such as washers, bolts, etc., should be treated as expense items. Here again, procedures relating to spoiled items should be investigated thoroughly.

Review Method of Application of Overhead

The study may indicate that for many years the company has consistently applied its manufacturing overhead to product cost on a certain basis, such as a percentage of direct labor dollars expended in each productive cost center. Even though this method of overhead application has been followed for a long time, it should be subjected to an intensive review. Generally speaking, the most exact method of applying overhead to a product is on the basis of a dollar rate per direct labor hour expended in the productive cost center. This is particularly true in cost centers that have a wide divergence of wage rates. It is quite clear that two individuals working side by side utilize about the same amount of overhead each day regardless of the wage rates they are paid. Accordingly, it is improper to charge one job with more overhead than another merely because the individual working on that job receives more pay than someone working on another job.

However, there may be many reasons why a percentage of direct labor dollars is used. In certain instances the divergence of wage rates may be small. Consequently, the results obtained from this method are adequate. Furthermore, the cost collecting method may be such that it is very difficult or economically prohibitive to accumulate dollars and hours with respect to direct labor applied to a specific job.

If, in a certain area, the method of overhead application seems illogical, it should certainly be reviewed. An example of such an area is a machine shop where a machine operator is expected to operate more than one machine at a time. It is generally feasible in such a cost center to apply overhead to jobs on the basis of machine hours. If this is not done, the operator must charge his time to the various jobs being machined at the same time on some arbitrary, split basis. It follows, then, that overhead will also be allocated on an arbitrary basis if it is applied against his labor dollars or labor hours. Such a method does not provide very exact costs because it allows too much discretion to the machine operator as to how he will charge for his time.

The foregoing deals primarily with a job order actual cost accumulation system. However, the basic principles involved and the problems resulting usually are similar in all systems.

The Overhead Survey Worksheet

It is important that the information assembled with respect to the study be understandable. The use of a form, such as the Overhead Survey Worksheet (Exhibit 1) becomes very helpful in this respect. This worksheet not only allows the compilation of data on a consistent basis but it also brings actively into the picture a man who is most interested in proper overhead rates, the person in charge of the cost center involved. Inasmuch as the indirect expenses in a productive cost center relate to the center itself, this worksheet need be filled out only for nonproductive or service cost centers. However, to be sure that nothing is overlooked, even in factory shop areas, it is advisable to use applicable parts of the form for all cost centers.

The overhead survey worksheet is prepared by the person in charge of the service cost center. Each productive function should be properly listed and related to the total productive functions in the center. The form provides for a determination of functions at various percentages of capacity (100% and 120% by request and 80% by inference). These data are helpful in determining possible overhead rate changes at various capacities of production. The form also provides for information related to idle space, nonutilized facilities, etc., which

OVERHEAD SURVEY WORKSHEET as of _____

SERVICE COST CENTER (1): Production Control IN CHARGE: L. L. Gumbs

GENERAL FUNCTION: Scheduling work load in factory cost centers to meet required shipping dates and maintain proper balance of production.

	Average rate per hour	People needed	100% Capacity Labor cost per hour	100% Capacity Percent of labor cost	People needed	120% Capacity Labor cost per hour	120% Capacity Percent of labor cost
NONPRODUCTIVE FUNCTIONS:							
Supervision	$4.00	3	$12.00		3	$12.00	
Secretarial and general clerical	1.75	3	5.25		4	7.00	
Other (explain)	-	-	-		-	-	
PRODUCTIVE FUNCTIONS (2):							
Editing	2.00	8	16.00	27.40	10	20.00	27.61
Estimating	2.15	4	8.60	14.73	5	10.75	14.84
Expediting	1.80	4	7.20	12.33	5	9.00	12.42
Filing	1.50	7	10.50	17.98	8	12.00	16.56
Scheduling	2.30	7	16.10	27.56	9	20.70	28.57
Totals - Productive functions only		30	58.40	100.00	37	72.45	100.00

ASSIGNED FLOOR SPACE NOT UTILIZED (3): 300 sq. ft.

Reason: Available for expansion beyond 120% capacity

ASSIGNED FACILITIES NOT UTILIZED (describe and give reason):

OTHER COMMENTS:
None

Note: The numbers in parentheses after the various captions refer to the Overhead Survey Worksheet Instructions.

EXHIBIT 1

should be considered in the study. The back of the form (Exhibit 2) is the backbone of the study. It provides the basis for distributing the cost of the service cost centers to the productive areas receiving the benefit of the functions performed.

The form is supplemented by instructions comprising necessary explanations as follows:

OVERHEAD SURVEY WORKSHEET INSTRUCTIONS

1. The individual in charge of each service cost center shall fill in the required data on the overhead survey worksheet and sign his name in the space provided. If no answer is applicable please so indicate by stating "None." Service cost centers are all centers in which a manufactured part or product is not made or assembled.

2. Productive functions represent the functions of the service cost center required to fulfill the "general function" of the cost center. It does not include supervision, secretarial, general clerical and other supporting functions such as filing, typing, etc. The data related to these latter functions should be included under nonproductive functions.
3. Assigned floor space not utilized means unused or unnecessary areas assigned to the cost center. It does not refer to aisles or other necessary space required for access purposes.
4. The reverse side of the form provides space to indicate the percentage of effort expended by the cost center of productive shops as well as nonproductive areas. This should be filled in after it has been determined how much of each of a cost center's productive functions is performed on behalf of other cost centers. The objective is to indicate which other cost centers benefit from its productive efforts and to what extent (percentage). Such percentages may be determined by keeping time records, counting selected paperwork or items handled, etc.

In allocating indirect overhead expenditures to production areas, the surveyor frequently looks for an easy way out. Many times he accepts some arbitrary means of allocating overhead costs to the productive cost centers, such as the number of people in the benefit-receiving cost center, in order to expedite the study. It is felt that arbitrary methods of allocation should be accepted only after it has been determined that there is no other feasible way.

It is believed that a more accurate allocation of overhead costs to productive

OVERHEAD SURVEY WORKSHEET (BACK)
Percentage of Effort Expended for Other Cost Centers (4)
(100% capacity)

Productive Functions	Shop A	Shop B	Shop C	Shop D	Shop E	Other centers benefitted (indicate name of center)	Total
Editing	20	20	20	30	10		100
Estimating	15	15	15	40	15		100
Expediting	25	25	25	20	5		100
Filing	17	18	17	33	15		100
Scheduling	22	22	22	28	6		100

(4) See note at bottom of Exhibit 1

EXHIBIT 2

cost centers will be accomplished if the person in charge of each service cost center determines how its effort in its productive functions is expended for the benefit of other cost centers, either direct or indirect. Actually, all of the functions, as they relate to the cost centers receiving benefit, are either productive or nonproductive. The functions considered nonproductive are those that cannot be specifically related to any of the functions that the cost center normally performs in order that the company may produce the products that it sells. Thus, it can be said that the nonproductive functions may be allocated to the productive functions in the relationship that each of the productive functions bears to the total of the productive functions in the cost center. On this premise, the nonproductive functions may be ignored in arriving at percentages of total costs of the center to be allocated to the cost centers receiving benefit.

The overhead surveyor should review the required information carefully with each of the persons in charge of the respective cost centers. A list of the productive and nonproductive functions may then be prepared. After an understanding has been reached, it is easier for the person in charge of the cost center to assign his personnel to each of the functions and determine cost centers which are receiving benefit from the effort expended by his cost center, usually by means such as:

1. Keeping individual daily time records.
2. Counting the number of people in each benefiting cost center.
3. Determining square feet in areas serviced.
4. Time estimates.
5. Analyzing material requisitions issued (as in the case of storerooms).
6. Analyzing purchase orders issued.

During the study, the surveyor should frequently contact each person in charge of a cost center to be certain that any problems that have developed are resolved as soon as possible.

Establishing Overhead Rates

When all the overhead survey worksheets are completed and returned to the study center, the detail work of the study begins. First, the information is spread over all the cost centers on a dollar and percentage basis. Dollars indicate the impact upon each benefiting cost center's total overhead. Percentages highlight the effort expended and may help raise questions as to reasonableness. Overhead rates are then determined by dividing the total allocated over-

head dollars for each production cost center by the direct labor dollars, direct labor hours, machine hours, etc., of the respective center.

After the individual overhead rates are determined for each productive cost center, the rate established and all allocated amounts should be reviewed with the person in charge of the respective production cost centers. In other words, the foreman of Shop A should know that the overhead rate applicable to his shop is 150 percent, or $3.10 an hour, as the case may be, and that the allocated costs in establishing that rate included so many dollars spent for the benefit of his shop by purchasing, production scheduling and each other servicing cost center. In many cases, the foreman may not agree with the results of the determination of effort that was made by the person in charge of the service cost center. This might require further study. If the cost center foreman receiving the benefit feels that the benefit is not an important one, he can arrange to have the service limited or perhaps eliminated. In this manner, the overhead rate for his center may be reduced through the reduction in personnel etc. in another cost center. This is a fringe benefit of making an overhead study, and a mighty important one.

Information Needed

Every company, regardless of its size, needs to know the following about its overhead costs:

1. *What* it consists of.
2. *Why* it is incurred.
3. *When* it increases or decreases.
4. *How* it should be allocated to manufactured products.
5. *Where* it is in the accounts.
6. *Who* is responsible for its control.

The six interrogative words above will be recognized as the "six honest serving men" in Kipling's poem. Without the knowledge they will provide about overhead, it will become increasingly difficult to operate a business and obtain maximum profits. Therefore, overhead must be studied and restudied on a continual basis with constant emphasis on improvement and understanding of costing procedures.

Cost Prevention from Design to Product

by LINN TELLANDER*

THERE ARE three successive types of problems to challenge the cost researcher. Here they are, in ascending order of difficulty:

1. The easiest improvement comes by a study of something already being made or performed. It can be observed, criticized, revised and improved.
2. The more difficult is to visualize the greatest economy for a part or job which has been designed or planned but never built or done, then devise a good method of doing it and/or improve on the basic design.
3. The most difficult problem is to visualize a product or process to be and devise a form which is economical to produce or perform, taking into consideration the cost of materials and labor. This is the problem of the product designer.

The degree of difficulty is also the order of importance. If Problem 3 has been thoroughly considered by the designer, it is less likely that the study of Problem 2 will show up weakness in the original concept. The investigator of Problem 2 will find that he is called upon to solve difficulties which are unavoidable, not ones which could have been eliminated at the originating stage. If, in turn, Problem 2 is solved correctly, Problem 1 does not exist. This logic has led us from the familiar area of improving an existing part or process back to the original design stage. It is here that cost study should start.

In practice, it is unlikely that perfect solutions will be found at both the design and processing stages; some modifications will be found necessary as a result of production experience. It is most important to remember that the time to economize is before production commences. At this time, we are not concerned with how, when or where the job is to be done or who does it; we are not interested in the difficulties of doing the job, except that the more difficult it is, the more inducement there is to find a way to avoid having to do it at all. The questions we are vitally concerned with are "What has to be done, and why?" There is no old design to examine and criticize. We are on our own, with a clean page to create what we like, and with the uncomfortable knowledge that the process and cost engineers are lying in wait to tear apart our best efforts.

---

* Manager, Procurement Planning, St. Joseph Division, Whirlpool Corporation, St. Joseph, Michigan.

One of the most difficult tasks in cost prevention is to get design and other creative engineers to undertake the concentrated and rather laborious mental effort of applying the questioning technique systematically. Most of them either devote their efforts towards justifying the first design or else fly off with one or two snap ideas and pretend that they have analyzed the problem. One of the most important functions of the product designer is to retain a critical, analytical attitude of mind. The foundation for this attitude must not be the usual remark of "Why this way" but, rather, "How can we do it another way?"

What we need to do is to aim our thinking in a definite direction forming the questions which drive our thinking forward to a definite answer, rather than hopefully relying on superficial consideration. Moreover, we are not only concerned with the requirements which assume that something has to be made; we should seek to avoid the need for the part or function entirely.

The ultimate goal would be to eliminate the need for a part. But, obviously, this cannot always be done. However, we need not neglect the elimination process for this reason. If it has been determined that the part or function must exist, we should continue our efforts with the thought of how much of the part or function has to exist. By the time this stage is reached, a mental image of the part or function has imprinted itself on the engineer's mind. This is the time to make a sketch or mock-up or process sheet in order to get this image recorded. Now, and before we go from this stage to the next, a concentrated effort must be made for the elimination of any part or portion or process that can be subjected to it.

As mentioned earlier, it is relatively common knowledge that second guessing is simple when compared with an original creation. The fact that many people can look at a part or process after it is performed or built and suggest improvements only emphasizes the point. For this reason, minds that are skilled in the art of second guessing must be brought to bear on the design of a part or function at its very earliest stage.

Thorough consideration must be given to so-called safety factors to ascertain that they are really required. It should be remembered that it does not take nearly the skill to design a part or process that will more than do the job. The real skill comes in when designing the part or process that specifically does the job with a bare minimum factor to allow for erring. One of the best tools an engineer has is the past experience of others. Talk with people who have made a similar part or to people who have performed a similar job; find out from this what their experiences have been. But, remember, they, too, are likely to justify the existence of their "system" against a new approach; when you ask questions beware of the validity of the comment, "We tried that and it

didn't work." Use your own judgment and be able to profit from the experience of others. In this connection, make use of the available talents and abilities that are in the other departments of your company. Ask them to give you their opinion of your problem. Remember, too, the people outside the company, such as vendors and their engineers. When you are "imagineering" a part that could be a purchased part, invite opinions from all sources that could supply it.

You are probably thinking, "That's fine except where do I find the time?" The best answer to this is, take the time, because, if you do not do it now, someone will come back and have to do it later and then even more time and expense will be involved.

Probably some sort of a chart or form could be devised with a number of questions and boxes to check off answers. This would determine whether you had thoroughly considered all the problems of a given situation. However, this is a mechanical process and we are talking about creativity; it is questionable whether the two will mix. There are five basic principles of work simplification that will apply, though. They are as follows:

1. Thoroughly acquaint yourself with the function required for the specific job. Then select a team of men in your organization that will be connected with this function.
2. Go to each of the men (or departments) or have a group-think meeting and get the facts about "how" and "why."
3. Challenge every detail. List all the possibilities for improvement.
4. After analyzing the above step, develop or design the new part or system.
5. Sell your ideas to your supervisor and realize the gains.

   (With the above consideration you should have no difficulty.)

As you can see, a form or a check list is not really required. The above five steps are simply common logic. In addition, though, there is probably a sixth step that should be considered, that is, "Do this to every part or process."

In summary, we want to point out again that cost prevention must be built into our product at its very earliest concept. The time allotted to designing, tooling, building, testing, and putting a part into production never seems to be long enough. But cost prevention is a function that must be considered at every step along the way. This, then, concludes our look into cost prevention—one of the most profitable services that can be offered any organization.

Functional Costing in a Life Insurance Company

by JOHN R. NEYREY

IN MOST INDUSTRIES, costing limited solely to cost determination is a thing of the past; current efforts center around the possible implications of cost data. Some few industries, however, have lagged behind in the overall progress and development of cost accounting. One of them is the life insurance industry, in which, for years, the problem has been given far too little consideration. We feel that the rather slow development of cost accounting as applied to life insurance stems from these three considerations:

1. Cost accounting lends itself quite readily to manufacturing where units of product are easily identifiable. Insurance companies, dealing in services rather than goods, have not been successful in adopting the methods used by manufacturing companies.
2. Heretofore, competition has not been severe enough to warrant strenuous price competition by insurance companies. Hence, costs could be estimated without too much detail.
3. Operating costs traditionally have taken a back seat to mortality and interest costs in order of importance.

But the situation is changing today. High profitability of the industry has attracted more and more competition, both from within the industry and externally. New forms of "packaging" insurance, new combinations of plans and new merchandising methods are arising to enable companies to maintain or even increase their shares of the insurance market. Beyond the industry, the competition is for the consumer's dollar. Insurance companies now face competition from durable goods industries and various forms of personal investment and savings programs. Under such competition, the cost-price relationship has become more and more a factor of importance.

Inflation continues to plague the industry, also. Premium rates, established at a time when operating costs were moderately low, are now proving to be inadequate since the inflation which has occurred was not foreseen or not completely discounted. In most cases, profit margins are being cut due to the ever-

---

JOHN R. NEYREY is Audit Accountant for Pan American Life Insurance Company, New Orleans, Louisiana, by which company he has been employed in various assignments since 1956. Mr. Neyrey holds a B.S. degree from Loyola University of the South and a M.A. degree in Accounting from Tulane University.

increasing cost of operation. Today, employee costs alone constitute over 50 percent of the industry's operating expenses. In the past, greater life expectancy which resulted in lower mortality costs acted as a buffer for the increased operational expenses. But operating expenses are increasing at a greater rate than life expectancy and the industry can no longer look to such savings to offset the excess expenditures for operations.

What is the answer? More management planning and control; more factual information from which to act. Cost data provide such factual information. In this article we shall attempt to describe one method of furnishing such data to management, through the operation of a functional cost system.

Functional Cost System Defined; Functions Outlined

Functional costing is a system of allocating expenses according to the activity or purpose for which the money is spent. As all cost systems do, it strives to attain a unit cost. The method used to achieve this unit cost is to derive a cost for every function in connection with one unit, and combine these costs into one total unit cost.

Unlike manufacturing industries in which complete operations are performed in specific departments, the life insurance company operation crosses many operating departments for the processing of one unit. What is needed to successfully unitize such costs is a buildup of the many costs of each specific operation being performed in the segregated departments.

The initial step in implementing a functional cost system is that of defining the operating functions. This process involves an outline of the divisions within the company and the major functions within each division. It also establishes the ultimate activities to which costs will be assigned. A division of this nature is by no means a new approach. Rather, it represents the first step taken by Life Office Management Association (L.O.M.A.) in its attempt to explore functional costing among life insurance companies as early as 1932 (*Proceedings of the 1932 Annual Meeting of Life Office Management Association,* p. 24.)

The system we are discussing is designed for use in a life insurance company dealing solely in ordinary life insurance. Considerations for annuities, accident and health, industrial and group insurance are purposely omitted to maintain a simple presentation, as opposed to the more complex considerations, where multiple lines of coverage are involved. This is not to imply that the system is not workable under these circumstances for, with some modification, it can be applied to a multi-line insurance company. For this very same reason, L.O.M.A. restricted its outline of functions to ordinary operations. As such,

the outline listed below differs only slightly from that presented by L.O.M.A. in 1932, mentioned previously. The differences are in the general administration division in which increased staff activity is currently being performed.

OUTLINE OF HOME OFFICE FUNCTIONS

Insurance — New Business

1. Acquisition
   (a) Home office management
   (b) Advertising
   (c) Education and training
2. Selection and issue
   (a) Checking applications and ordering reports
   (b) Underwriting applications
   (c) Issuing policies
   (d) Preparing records

Insurance — Old Business

1. Premium collections
2. Changes in contract
3. Payments to policyholders
   (a) Death claims
   (b) Maturities
   (c) Cash surrenders
   (d) Disability claims
   (e) Double indemnity claims
   (f) Other terminations
4. General policy maintenance
   (a) Reinstatements
   (b) Conservation
   (c) Policy valuation
   (d) Policy owners services
   (e) Filing and record maintenance

Investment

1. Stocks and bonds
2. Mortgage loans
3. Real estate
4. Collateral loans
5. Policy loans
6. General investment maintenance

General Administration

1. Statistical
2. Cost, budgeting and forecasting
3. Accounting and auditing
4. Mail and telephone
5. Personnel and employees welfare
6. Printing
7. Purchasing and supply
8. Legal
9. Methods and planning
10. Machine operations
11. Executive supervision

Each of the several functions mentioned in the insurance phases of the company's operations represents an activity for which a unit cost is obtained. The specific unit is cost per policy. Likewise, the functions described under the investment phase are assigned unit costs, namely, in terms of cost per $1,000 of asset investments. The unit designation to be applied to costs of general administration functions, however, will vary, depending on the function itself. For example, personnel and employee welfare activity is allocated by a cost-per-

employee basis; telephone activity by the number of telephones per department; cost, budgeting and forecasting on the basis of other expenses.

The results for a function such as selection and issue of policies will be expressed as follows:

Checking applications and ordering reports	$ 7.43
Underwriting applications	2.21
Issuing policy	1.80
Preparing records	.92
Total unit cost per policy	$12.36

Analysis of Functions

Step two in gathering costs under a functional system requires an analysis of each function in detail to determine the basic activities underlying each function. As a result of this analysis, a series of subfunctions is set forth for each major operation. These subfunctions become the basic elements to which costs are assigned. An example of subfunction analysis for the premium collections operations follows:

1. Preparing and checking premium notices.
2. Calculation of dividends.
3. Maintenance of dividends left on deposit.
4. Payment of cash dividends.
5. Premium and dividend postings.
6. Commission calculation.
7. Payment of commissions.
8. Verification of agents' statements.
9. Follow-ups for premiums overdue.
10. Changes of mode of premium payments.
11. Name and address changes.
12. Transfer of policies from one agency to another.
13. Mailing premium notices.

Each activity constitutes a subfunction of the whole premium collections function. Cost accumulation at this level becomes complex, since no one department performs all these functions. Actually, four other departments, besides the premium collections department, concern themselves with the one operation, namely, machine operations, actuarial, policy-owners service, and mail and file. Functional costing was designed to operate in a situation such as this where the parts were scattered throughout various cost centers.

Segregation into subfunctions, as done above, must be followed throughout every major function outlined earlier. Subfunctions now become the basic activity to which costs will be related. This applies to direct costs (employee salaries) as well as to indirect costs (personnel and employee welfare expenses). One method of making such allocations is through the use of time study analysis.

Time Study Analysis

The two steps of outlining and analyzing the functions in detail are tasks which are performed periodically. Time study analysis, the third step in the costing process, constitutes the continual operation of measuring the time distribution of each employee to the various subfunctions. The technique employed is work sampling.

Periodically, throughout the year, each employee is required to maintain a work record. The objective of this work record is to determine the percentages of the employee's total hours worked that are applicable to the various subfunctions which pertain to his job. Statistics are gathered in terms of minutes of work and number of units worked. The cost clerks can transform these data to percentages of time per activity and the average time per unit worked. Cost figures are accumulated through another phase of the system and related to the employee or the department being measured by various methods of allocation discussed later.

Time Study Worksheet

Employee: Jane Smith Date: June 20, 1959

Department: Controller's Section: Premium collections

Duties: Receive premium remittances, match remittances with premium due file, maintain premium due file, check premium notices.

Subfunctions Performed	Time (Min.)	No. Units
1. Check premium notices	67	131
2. Premium and dividend postings	154	216
3. Payment of commissions	82	167
4. Follow-ups for overdue premiums	83	177
5. Process reissues	20	27
6. Process reinstatements		
7. Others (specify)		
Total (minutes)	406	
Total (hours)	6:46	
Time unaccounted	:14	
Total time - hours	7:00	

EXHIBIT 1

The purpose of time study analysis is to reduce employee work time to measurable units related to repetitive subfunctions. Annually, the time study analysis (measurement of one day of activity) will be conducted by a time study clerk from the cost section who will, at that time, outline the subfunctions performed by the employee. Subsequent analyses will be accomplished by the employee in question, without benefit of an overseer.

A sample of a time study worksheet is presented in Exhibit 1. The worksheets originate in the cost section where the subfunctions are listed in advance, based on the supervised study performed previously. An attempt is made to acquire a sample of approximately 10 percent of the employee's annual working time. From this, an annual projection is made, so as to express all results on an annual basis.

A review of the worksheet sample indicates that all the subfunctions performed by one employee may not necessarily relate to the same major function. Numbers 5 and 6 are not premium collections operations, but the time and related costs of these activities should be determined for inclusion under the appropriate function. In the particular sample for this specific day, 20 minutes were devoted to processing re-issues; this constitutes 4.76 percent of total costs allocated to Jane Smith for that day.

Overhead costs for the department are likewise distributed to the various subfunctions but on the basis of the percent of the specific subfunction time to total departmental time. This procedure of allocation will be covered in more detail later.

Recording and Summarizing Costs

Up to now, the discussion has been restricted to that phase of functional costing over which the cost accountant has direct control. There are, however, some areas which are quite essential to attaining successful cost results but over which the cost accountant does not exercise authority, namely, general accounting. Two topics are of primary interest in this regard, namely, account distribution and departmental distribution. These responsibilities fall to the chief accountant.

A considerable amount of coordination must necessarily exist in this operation. The responsibility of educating and schooling the accounting section in the various facets of the cost system lies with the chief cost accountant. His objectives should be reflected in the accounts manual and in departmental expense distribution procedures. Also, procedures should attempt to isolate as many direct costs to the department incurring the charge as is practical and possible. By reducing the volume of indirect expenses to the lowest possible

amount, errors in judgment in estimating allocations of these costs are reduced proportionately.

Mention has been made earlier that the ultimate objective of allocating costs is to resolve the total expense assignable to each employee. Where this is impractical, costs are to be grouped by department. Initially, of course, every expense is identified with the department incurring it. All operating departments are totally involved in the primary operating functions and require no further allocation than that resulting from time studies. However, some few departments (service departments as outlined in the general administration division) bear no direct relationship to the operating functions and require a more pertinent method of cost assignment. Selection of a particular method of allocation to be applied to a service department should, itself, result from a study of the functions of the department in question. Regardless of the base selected, the indirect costs are nevertheless expressed in terms of cost per employee or cost per department, to conform with direct cost allocation. An example of this process is given for the personnel department in Exhibit 2.

Expense Allocation of Company Personnel and Employee Welfare Expenses

Personnel Department Functions	Total Cost per Subfunction	Cost Allocation Per Dept. *	Cost Allocation Per Employee**
Employment and hiring	$ 11,729.00	$	$ 31.70
Departmental personnel studies (includes absenteeism, salary and wage structures and administration, job classifications and evaluation, historical salary statistics)	19,240.00	$962.00	
Medical facilities for employees	6,145.00		16.61
Cafeteria facilities and employees lounge	26,079.00		70.49
Group insurance benefits - contributions	117,000.00		312.24
Pension plan contributions	153,000.00		413.51
House organ	14,319.00		38.60
Miscellaneous employee activities (includes participation in sports events, company sponsored socials, etc.)	17,423.00		47.09
Total personnel & employee welfare expenses	$364,935.00	$962.00	$930.24

* Twenty departments to which expenses are allocated.
** Employees number 370 for allocation purposes.

EXHIBIT 2

Service department costs are accumulated for the various operating departments under two categories, cost per employee and cost per department. Employee costs from service departments are combined with the specific expenses

for each employee from within the department, to arrive at a total employee cost for every individual. This result is then allocated to each of the subfunctions performed by the individual employee on the basis of time study analysis and percentages obtained. Costs per department are summarized in much the same way. Costs from within the department are combined with those allocated from service units, to form the total department costs that are distributed among the various subfunctions. Distribution is made on the basis of percentages, namely, the percentage of time for each subfunction in relation to the total department time.

Allocation of Employee Expenses by Subfunction
Premium Collection Department

Function and Subfunction	Premium Collection Department Employees J. Smith	J. Bates	Total
Premium Collection Function			
Prepare and check premium notices	$ 983.14	$ 246.54	$ 5,217.04
Calculate dividends	---	---	202.22
Maintain dividends on deposit	---	---	144.95
Pay cash dividends	---	---	804.17
Post premiums and dividends	3,449.23	3,033.26	28,409.88
Calculate commissions	1,087.77	2,432.25	16,717.51
Pay commissions	---	---	12,009.34
Verify agents' statements	---	---	2,976.67
Follow-up overdue premiums	801.25	---	1,994.55
Change mode of payments	62.13	51.06	485.61
Change names and addresses	---	251.14	265.44
Transfer agency records	---	206.96	237.81
Mail premium notices	---	810.29	828.48
Total premium collection costs	$6,383.52	$7,031.50	$70,293.67
Changes in Contract Function			
Process reissues	354.18	450.50	1,648.97
General Policy Maintenance Function			
Process reinstatements	311.50	305.07	1,207.61
Total employee costs	$7,049.20	$7,787.07	$73,150.25

EXHIBIT 3

The picture now begins to take shape. A combination of the results of the allocation of employee costs and department costs produces the total cost per function for the department (see Exhibit 3). When compared with the number of units processed by the department for each subfunction, a unit cost per subfunction is established which, when combined with those from other departments, forms the total cost per subfunction throughout the company. It then becomes a relatively simple matter to combine the subfunctions under each major operation to arrive at the total unit cost per function (Exhibit 4).

Premium Collection Function

Total Cost and Unit Cost

Premium collection subfunctions	Employee costs	Department costs	Other department direct costs	Total costs	No. of units proc.	Unit cost per subfunction
Prepare & check premium notices	$ 5,217.04	$ 777.04	$231,492.67	$237,486.75	851,207	$ .275
Calculate dividends	202.22	25.09	21,144.33	21,371.64	149,452	.143
Maintain dividends on deposit	144.95	17.38	4,666.50	4,828.83	45,555	.106
Pay cash dividends	804.17	121.77	6,910.67	7,836.61	41,907	.187
Post premiums and dividends	28,409.88	3,289.17	157,382.04	189,081.09	844,112	.224
Calculate commissions	16,717.51	2,020.40	23,276.13	42,014.04	591,747	.071
Pay commissions	12,009.34	1,651.17	39,773.18	53,433.69	580,801	.092
Verify agents' statements	2,976.67	440.71	6,484.13	9,901.51	582,442	.017
Follow-up overdue premiums	1,994.55	308.78	876.96	3,180.29	21,938	.145
Change mode of payment	485.61	54.49	478.78	1,018.88	4,281	.238
Change names and addresses	265.44	30.63	319.41	615.48	6,217	.099
Transfer agency records	237.81	28.93	68.17	334.91	3,101	.108
Mail premium notices	828.48	102.14	65,241.14	66,171.76	849,213	.074
Total	$70,293.67	$8,867.70	$558,114.11	$637,275.48	-------	$1.683

EXHIBIT 4

Use of Functional Cost Data

The uses to which functional costing and the resulting unit costs can be put are limited only by the abilities and ingenuity of management. The most obvious application of these results is in pricing and product planning. Life companies handle many different plans of coverage, each different as to the types and frequency of the various functions involved in maintaining the plan. For this reason, it becomes entirely necessary to establish premiums that include a sufficient portion of expenses comparable with the maintenance involved. In short, each plan must carry its weight costwise. If the premium does not support its expenses, then there exists an inequity. Having the cost of the various functions and knowing the frequency of these functions for a particular plan, the actuary can properly assign a cost necessary to operate the plan profitably.

Another important use of functional cost data is that of determining performance standards. Standards give management a most valuable tool by which to gauge performance. Overall costs have been easy to derive but what management needs is a method to compare the efficiency of the company's operations with previous periods. This situation is much like the doctor who had a thermometer that was not graduated. Knowing at what point the mercury lies requires no particular talent. However, if the thermometer is not graduated, the doctor does not know if the reading is good, bad or indifferent. What is needed is a standard or rate against which to measure the reading on the thermometer. So also, the manager must have at his disposal a method of rating, a standard with which to measure efficiency. Functional costing does just this by providing unit costs for each activity and function. A comparison of operating results from year to year will permit a true evaluation of performance measurement.

Still another service provided by the functional cost system is that of determining alternative costs where different courses of action are available. Some insurance companies maintain their own printing plants while others purchase all printing material externally. Functional costing permits a detailed measurement of the profitability of operating a printing plant, as opposed to other alternatives.

The system also lends itself to measuring the effects of major operational changes within a company. By having a factual cost of activities, the cost accountant can accurately estimate savings to be realized by mechanization or other work improvements. Freeing clerical time as a result of a change in procedure is only the first step in realizing savings.

Finally, cost accounting is the backbone of expense control. Until the specific areas of expenses are isolated and examined, one can give but a mere guess as to

the necessity of some expenses. The functional cost system places at the disposal of management a most effective method of expense budgeting and control. When used to its best advantage, a system such as has been outlined in this article will yield many dividends.

We have attempted to bring together various aspects of cost analysis. It is hoped that this discussion will stimulate further thinking in the field where more attention is so badly needed.

Our Version of Manpower Planning

by LEIGH S. DOYLE*

I HAVE READ with a great deal of interest the article published in the October 1959 issue of the *Bulletin*, entitled "Manpower Planning—A Case Study" by Guerard H. Howkins, Jr. I feel that the article, as presented, indicates the most desirable situation under ideal conditions. In addition, this author has made his presentation on standardized product production with no indication of special custom fabricated products. Maybe this is because there are none in his company. However, there is a more serious manpower planning problem which revolves around special custom fabricated or assembled products.

The company for which I work is a sheet and plate steel manufacturer. This kind of business requires considerably more planning and attention to production requirements. We project our forecast of standard product production very much in the same manner as Mr. Howkins' company but only on an annual basis. Also, we determine its extent through a sales forecast, by months, for the year. Based on these figures and our production facilities, we determine the quantity of each product we can produce on a daily basis for the number of working days in each month. From this we determine the manpower needed to produce this quantity. It gives us the available man-hour capacity for the work center, which we schedule accordingly.

PRODUCT "A"

Daily Unit of Output *25*. Daily Man-Hour Capacity *24*.

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Monthly total assembly hours	504	480	528	480	504	528	552	504	528	528	504	504
Monthly unit of output	525	500	550	550	525	550	575	525	550	550	525	525

Yearly total assembly hours 6141 Yearly unit of output 6450

*Manager, Production and Cost Control, Richmond (Virginia) Engineering Co., Inc.

The example given reflects an even schedule of production. As the product line is seasonal, it shows an over production during the first four months to supplement the production during the peak season for the next six months. The production for the last two months adequately provides for the demand, with a minimum inventory at the year end. Of course, if the demand requires it, we can increase the force or go to a second or third shift.

We have three work center assembly areas in our shop in which we produce a mix of standard and special custom fabricated jobs. In these work centers, we also determine our man-hour capacity on sales forecast requirements. It is not quite as easy to schedule the production because there are no predetermined quantities, other than the backlog accumulated, for which to schedule production for a given month or more. Conversely, an estimate of the total labor hours required on each of these jobs and the delivery time quoted based on available capacity at the time of receipt of the special material requirements, plus time requirements for engineering, dictates the scheduling of this production. The biggest problem in these areas is to have the available capacity to fabricate within the time requirements of the customer.

We are maintaining the desired control of our production through the following:

1. Production control backlog file indicating the available hours of loading to absorb man-hour capacity as it becomes available.
2. Production forecast file indicating each job, by weeks, and the absorbed capacity in each work center for the month.
3. A daily labor report by jobs indicating the actual hours and the percent of the allowed hour capacity absorbed.
4. A graphic chart which is plotted to indicate the available capacity by weeks for the month and the amount of that capacity which has been absorbed.
5. A graphic chart indicating the production forecast in dollars, the production forecast completed by the shop, and dollar value invoiced of the jobs forecast and completed by the shop, all by days for the week and for the month.

The above reports and graphs are coordinated with our shop schedule, which is set up in group days (each group representing two calendar working days) and for each work center by operations and hours.

We follow each job on the shop schedule through the use of a daily labor report, for any trouble spots, and, also, the production forecast for any job not completed on the day in the week scheduled. We follow the graphic chart (on the production forecast) each day for any indication of decrease in production or to note any occasion on which the output line does not follow the production forecast line closely enough.

Everything considered, it represents an excellent planning approach to standard product production in respect of manpower requirements to satisfy the overall production needs in this area.

Financial Control in Local Labor Unions

by WADE B. SALISBURY

VAST SUMS OF MONEY are being accumulated in union treasuries through the payment of dues and fees by rank and file union members, but little has been written on the subject of accounting as related to labor unions, particularly at the local union level. The American public has become increasingly aware that many labor unions are now enterprises of substantial size and complexity. Recently, legislation was enacted aimed at establishing a basis for financial reporting by labor unions; however, the exact reporting requirements of this legislation have not as yet been disclosed. The purpose of this paper is to suggest ways in which local union officials, themselves, may improve the accounting for and control of funds for which they are responsible. It deals with financial reporting by local unions and includes a proposed accounting system and suggestions relating to budgeting and internal accounting control.

The Necessity of Financial Information

Many labor unions, both local and international, publish no financial reports of any kind. In some cases, financial information concerning the union is not even available to the members. Various reasons are given for this lack of disclosure on the part of unions; in many instances, accurate financial information just does not exist. If the latter is true, the union management cannot be provided with the financial facts concerning the organization, not to mention that the members are deprived of information rightfully theirs.

In any business (and a local union *is* a business), in order to operate properly and efficiently, accurate and helpful financial information must be available to management. The objectives of financial reports issued by business concerns are to disclose to the reader the results of past operations and the current financial position of the enterprise and provide management with information for future planning. The local union financial report, however, has the additional objective of providing a check on the activities of the elected officials. In order to achieve this last purpose, the report must be carefully designed to indicate the union's activities during the period and also to disclose the extent to which union funds have been employed in these activities.

WADE B. SALISBURY, Peninsula-San Jose Chapter, 1958, C.P.A., is a Senior Accountant in the San Francisco office of Price Waterhouse & Co. Mr. Salisbury has a B.S. degree from Rutgers University in New Jersey.

Periodic financial statements published by a local union should be presented in a form which will be readily understood by the rank and file union member, who probably has a limited knowledge of accounting and financial statements and yet is concerned with the disposition of his dues and other contributions. Therefore, a cash-basis presentation of financial condition and results of operations would probably be more appropriate for the local union; however, certain non-cash assets and those of a permanent nature should be recognized and recorded. It is not suggested that the cash-basis method more accurately reflects financial condition but only that it may be more appropriate in these circumstances. Unusual liabilities which have an important bearing on the financial solvency of the local should, of course, be disclosed in the financial statements, by footnote or otherwise.

Fund Accounting for Unions

Before discussing the actual accounts to be employed, it is desirable to mention fund accounting and its applicability to labor unions. Unions frequently employ a form of fund accounting in order that limits may be placed on the source and use of revenues of the union. The use by local unions of separate and distinct funds is required under the constitutions and by-laws of many international unions. Such funds fall into two classifications, general and special-purpose funds. Each fund represents a separate accounting entity for purposes of recording revenue and expenses; a complete set of accounts therefore is established for each. For our purposes, we will assume that three separate and distinct funds exist:

General fund.
Strike fund.
Death benefit fund.

A separate set of books or segregation in the general ledger is needed in order to distinguish properly among the assets, receipts and disbursements of each of these funds.

The Chart of Accounts — A Proposal

The local union should develop a chart of accounts for reference when determining the accounting allocation of the various transactions. Let us examine a simplified version of a chart of accounts which a local might use if the funds were to be maintained on a cash basis. Several explanations have been inserted parenthetically where considered appropriate.

GENERAL FUND:

Assets:

Cash in bank and on hand
Advances and deposits
Investments
Property and equipment and related reserves for depreciation and amortization

Equity:

Members' equity
(The balance in this account represents the total of the assets arising from the cash transactions since the inception of the fund.)

Cash receipts:

Membership contributions:
Dues
Initiation fees
Reinstatement fees
Withdrawal fees
Fines
Collections for strike fund
Collections for death benefit fund
(Collections for the other funds are recorded in the general fund cash receipts book since it is assumed that the members will generally remit dues and special fund assessments in a single payment. Transfers to the other funds may be made monthly.)

Other income:
Rents
Interest
Dividends
Miscellaneous

Reimbursements and refunds received
(This account is used for the return of unused travel advances and reimbursement to the union for any personal expense paid for the union officials or employees.)

Cash collected for sale of assets:
Net book value of asset sold
Gain or loss on sale
(See explanation of "Adjustments to members' equity".)

Cash disbursements:

Administrative expense accounts

Per capita taxes

Union activity expenditures

(It is intended that expenses be accumulated separately for each union activity and that details be shown in the financial statements. Use of a subsidiary ledger may be desirable.)

Transfers to other funds:

Strike fund

Death benefit fund

Purchase of assets:

Investments

Property and equipment

(See explanation of "Adjustments to members' equity" below.)

Adjustments to members' equity:

(By use of the adjustment accounts, the members' equity is adjusted for those cash and other transactions which affect the union's investment and property accounts. The necessity for periodically reviewing the detail entries in order to adjust the asset accounts is eliminated. Examples of the use of these accounts are included later in this article.)

Purchase of assets

Sale of assets

Provision for depreciation

Miscellaneous

STRIKE FUND:

Assets:

Cash in bank

Investments

Equity:

Members' equity

Cash receipts:

Contributions from members

(transferred from the general fund or paid direct)

Income from investments

Other income

Cash disbursements:

Member benefits

Contributions

Other

Adjustments to members' equity:
Investments
Liquidation of investments
Miscellaneous

DEATH BENEFIT FUND:
Same as strike fund above.

In addition to the above ledgers and accounting records, a perpetual record of membership statistics should be maintained, indicating at any given time the number of members in good standing, as well as the increases and decreases attributable to each of the following: initiations, reinstatements, withdrawals, suspensions and deaths. These statistics provide a basis for controlling certain sources of revenue and payment of per capita taxes to the international union. A report of membership statistics, showing the above information, should accompany the monthly internal financial statements, to provide management with a means of analyzing such statements and forecasting future trends. Also, such a report on an annual basis might be included with the published financial statements, either as a separate statement or as part of the narrative report accompanying the statements.

Financial Statements

Now that we have explored the accounts and records a local union might use, we will discuss the end product of the accounting records — the financial statements. The statements which will be illustrated could be published for use by the general membership, while a more detailed breakdown of the cash disbursements and certain other information may be needed for management use.

Exhibit 1 illustrates a statement of fund assets prepared on the basis of the suggested accounts. It is important that the assets and members' equity pertaining to each of the funds be stated separately, as illustrated. If only the consolidated amounts were shown, as in the total column in the illustration, it can readily be seen how misleading this statement would be. The cash balance shown in the consolidated statement would be presumed to be available for general operating and administrative expenses, although only the general fund cash may be so used. While disbursements from the special-purpose funds should be limited to the intended purposes, some union by-laws permit the local union executive board to authorize emergency use of special fund assets for other purposes. In such instances, full disclosure in the financial statements is necessary and may be obtained by using inter-fund accounts.

STATEMENT OF FUND ASSETS

DECEMBER 31 1959

	General Fund	Strike Fund	Death Benefit Fund	Total
Cash on hand and in banks:				
Office funds	$ 1,000			$ 1,000
Commercial bank accounts	77,525	$ 24,730	$ 12,915	115,170
Savings bank accounts	41,412	262,730	47,200	351,342
	119,937	287,460	60,115	467,512
Advances and deposits	1,725			1,725
Investments, at cost:				
U.S. Savings Bonds, Series K (redemption value $120,975)	125,000			125,000
ABC County 1-1/2% Water Bonds, par value $100,000, due 4/1/63 (quoted market value $87,590)		96,925		96,925
DEF County 4.48% Highway Construction Bonds, par value $50,000 due 5/1/66 (quoted market value $48,715)			41,714	41,714
Property and equipment:				
Land, at cost	12,000			12,000
Buildings, at cost, less accumulated depreciation of $127,315	412,052			412,052
Equipment, at cost, less accumulated depreciation of $14,723	62,960			62,960
Members' equity, December 31 1959	$733,674	$384,385	$101,829	$1,219,888

EXHIBIT 1

A statement of cash receipts and disbursements and changes in members' equity may be prepared as follows:

STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS
AND CHANGES IN MEMBERS' EQUITY
FOR THE YEAR ENDED DECEMBER 31, 1959

General Fund

Receipts:			
Membership contributions:			
Dues		$654,585	
Initiation fees		81,200	
Reinstatement fees		3,100	
Withdrawal fees		1,370	
Fines		4,477	
Collections for Strike fund		12,640	
Collections for Death benefit fund		23,765	$781,137
Other income:			
Rents		$ 19,875	
Interest		1,351	
Miscellaneous		544	21,770
Reimbursements from officers and members for personal expenses, telephone calls, etc.			1,673
Sale of automobile			1,500
			$806,080
Disbursements:			
Administrative expenses:			
Salaries		$109,134	
Payroll taxes and employee benefits (less amounts withheld from employees)		6,187	
Officers' travel expenses		4,484	
Executive Board expenses and allowances		3,177	
Office supplies and expenses		2,991	
Building operations		8,733	
Legal and accounting fees		7,200	$141,906
Per capita taxes paid to the XYZ Union			136,497
Union activity expenditures:			
Organizing:			
Salaries of business agents	$214,912		
Travel and entertainment	63,724		
Miscellaneous	1,977	$280,613	

Member relations and grievances:			
Salaries of business agents	$ 43,784		
Travel expenses	9,430		
Miscellaneous	837	54,051	
Monthly magazine:			
Salaries	$ 19,844		
Purchase of materials and supplies	14,970		
News services	7,172		
Photographs	4,100		
Miscellaneous	1,345	47,431	
Research:			
Salaries	$ 8,125		
Travel	1,130		
Publications	1,975		
Miscellaneous	431	11,661	$393,756
Transfers to other funds:			
Strike fund		$ 12,640	
Death benefit fund		23,765	36,405
Purchase of land			2,500
			$711,064
Excess of receipts over disbursements for period			$ 95,016
Adjustments to members' equity:			
Book value of automobile sold		$ (1,000)	
Purchases of land		2,500	
Depreciation provided		(26,420)	(24,920)
Net increase in members' equity during the period			$ 70,096
Members' equity, December 31, 1958			663,578
Members' equity, December 31, 1959			$733,674

Strike Fund

Receipts:		
Transferred from General fund	$ 12,640	
Interest	1,500	$ 14,140
Disbursements:		
Member benefits	$ 4,160	
Contribution to Local Union No. 2	2,000	6,160

Excess of receipts over disbursements for period		$ 7,980
Members' equity, December 31, 1958		376,405
Members' equity, December 31, 1959		$384,385

Death Benefit Fund

Receipts:		
Transferred from General fund	$ 23,765	
Interest	2,240	$ 26,005
Disbursements:		
Payments to beneficiaries of deceased members		29,500
Excess of disbursements over receipts for period		$ (3,495)
Members' equity, December 31, 1958		105,324
Members' equity, December 31, 1959		$101,829

This illustration reflects, among other things, the results of transactions involved in both the sale and purchase of assets. In order to explain more fully the use of these accounts, we will examine the following transactions in detail:

1. Details of the sale of the automobile were as follows:

Cost	$3,000
Accumulated depreciation	2,000
Net book value	$1,000
Cash sales price	1,500
Gain on sale	$ 500

To record this sale, the following entries are necessary:

(a) In cash receipts book:

Dr. Cash	$1,500	
Cr. Net book value of asset sold		$1,000
Cr. Gain or loss on sale		500

(b) By journal entry:

Dr. Accumulated depreciation	2,000	
Dr. Adjustments to members' equity —sale of assets	1,000	
Cr. Equipment		3,000

2. A parcel of land was purchased for $2,500 requiring the following entries:

(a) In cash disbursements book:

Dr. Purchase of assets—		
Property and equipment	$2,500	
Cr. Cash		$2,500

(b) By journal entry:

Dr. Property and equipment	2,500	
Cr. Adjustments to members' equity —purchase of assets		2,500

Use of this method permits both the statement of fund assets and the statement of cash receipts and disbursements and changes in members' equity to be prepared directly from the accounting records without further analysis. Particular attention is directed to the changes in members' equity. By employing these accounts, the statement of cash receipts and disbursements is correlated with the statement of fund assets and the reader is provided with an analysis of the changes in asset balances from amounts shown in previous financial statements.

Whether the local union's financial statements are presented in a manner similar to the examples or not, the main purpose of the published financial statements should not be forgotten. It is to give the members and other interested readers a fair presentation of the local's financial condition and the results of its operations for the period.

Budgeting — The Key to Control

While many people are inclined to associate budgeting with big business, it is in reality a basic management tool for exercising control over revenue and expenditures, regardless of the size of the enterprise. It is apparent that local unions and their members could derive a great deal of benefit from the use of a budget. Careful budgeting of cash receipts and disbursements will aid local union management in keeping the flow of dues and fees received from members in balance with the funds spent for operations, investments in property and equipment, etc. In addition, considerable value is to be found in the actual preparation of the budget, in that its preparation requires close cooperation and understanding between the local union management and all operating personnel. The resulting budget should, of course, express the combined judgment of the group.

Membership statistics, previously mentioned, play an important role in the budget as the sole means of forecasting cash receipts from dues and fees. The budgeting of miscellaneous income such as rents, interest and dividends should not be difficult; it is particularly valuable to management as a basis for exercising control over the actual receipt of such income. Cash disbursements

present by far the most serious problems in the preparation of a budget for a local union, since the areas of concentration of efforts are not entirely predictable. Strikes may drastically alter the most carefully prepared plans; unexpected resistance may significantly increase organizing expenditures as related to other cash disbursements. However, such occurrences do not preclude the preparation of a budget but, instead, they represent explanation of variances from amounts originally budgeted. Based on previous experience and the best possible estimates, forecasts of cash disbursements should be made for each of the local's activities. These estimates may be further allocated, within the areas of organizing, grievances and negotiating, to the various employing companies, including those where organizing attempts are expected to be made. Such refinements are, however, optional and depend upon the needs of management.

Actual salaries and expenses of the local union's business agents may be allocated to the various activity expenditure accounts based upon periodic time reports prepared and submitted to the local by the business agents. In this way, the expenses involved in each local union activity may be compared by union management with budgeted amounts as a check on the effectiveness of business agents and other employees. The monthly financial report submitted to local union management would contain a breakdown by employing company of cash disbursements attributable to organizing expenses and member relations and grievances, a summary of which is presented in the financial statements at the end of the year. It is only in this manner that management may exercise adequate control over such expenditures.

The budget provides management with the key to control of the complete organization and a yardstick by which to measure progress and plan for the future.

Internal Financial Control

A good system of internal financial control is a necessity if local union officials are to discharge their responsibilities to the members in a proper manner. Its objectives are to safeguard assets from loss by fraud or unintentional error; its fulfillment may be realized through adequate segregation of the custody of an asset from the recording of transactions involving the asset.

Planning a system of internal control requires a basic understanding of the financial functions of a local union. As we can see from the suggested chart of accounts, the revenue of a local union is primarily dues, fees and special assessments. Three separate functions exist with respect to this revenue:

1. The receipt and deposit of remittances.

2. Issuing or updating the members' identification cards.
3. Recording the remittances in the membership ledger.

To achieve the necessary control over such receipts, no single employee should perform more than one of these functions. Therefore, when considering assignment of duties relating to cash receipts, the employee who opens the mail and prepares the daily bank deposit should not be permitted access to the membership ledger or have any duties in connection with the issuing or updating of members' identification cards. These cards must be safeguarded and controlled, numerically or otherwise, in order to prevent unauthorized issuance and the abstraction of related cash remittances.

A prenumbered receipt form should be prepared in triplicate for each remittance. One copy should be delivered to the member; another copy serves as the basis for posting the membership ledger cards; the third one is posted daily in summary form to the cash receipts book and becomes the basis for subsequent entry in the general ledger. This third copy may also be used for updating the members' identification cards. Mechanical methods may be more appropriate, depending on the size of the local and other circumstances.

Control over the collection of members dues and fees could be simplified by what is known as a "lock box" system. Under this system, monthly dues and assessments are mailed to a post office box registered in the name of the local union's bank, and access to it is limited to the bank. The bank, sometimes without charge, prepares and forwards to the local union a report indicating the members' names and amounts received, while the remittances are automatically deposited and credited to the local union's account. Not only is the accounting procedure for collecting and recording dues simplified but also greater control over funds is obtained.

Under either of the foregoing methods, the total of the postings to the membership ledger should be balanced independently to the daily cash deposit.

Payments to vendors are usually controlled by providing that no single employee shall have the authority to order material or services, acknowledge its receipt and approve the related invoice for payment. Even if these duties are adequately segregated, the approval of invoices must not be done in a perfunctory manner. Employees charged with this responsibility must be aware of the real purpose behind their work, which is to determine that the expenditures involved were duly authorized and that value has in fact been received.

Cash disbursements may be further controlled by requiring, as most union by-laws do, that all checks be signed by two local union officials. Too often, however, the checks are signed by such officials in a routine manner and supporting documents scanned briefly, if at all. Satisfactory internal control re-

quires that supporting documents be inspected by check signers and, in order to prevent subsequent use, that they be cancelled in their presence or under their control. The best method of effecting adequate cancellation is to use a perforating machine, similar to those used by banks, which perforates the date and the word "PAID" through all supporting documents. Employees approving invoices and preparing the related checks should not have access to such checks once signed. Signed checks should flow direct to persons responsible for mailing.

Budgeting, as previously discussed, represents an excellent control device by bringing to management's attention deviations from the original plan. The value of comparing actual expenditures with budgeted amounts rests not only in being able to measure performance against a goal but also, which is equally important, in pinpointing and investigating variances.

A staff of internal auditors represents an important link in the system of internal control by providing a further degree of assurance that prescribed procedures are actually being carried out. Some international unions employ internal auditors for periodic tests of local union records relating to per capita tax payments. Use of such internal auditors could easily be extended to include detailed tests of all the local's accounting records.

The Final Responsibility

The final responsibility rests with the union members themselves. Through their vote they decide the quality of management and thus, to a considerable extent, determine the quality of the system employed and the diligence with which duties are performed.

The value of services rendered by independent certified public accountants should not be overlooked. An independent examination of the local's financial statements tends to increase the confidence of the members in the elected officials and provides a greater degree of assurance that all pertinent facts are disclosed in the financial reports. In addition to tests of accounting records and transactions, an examination usually includes a review of the accounting principles and procedures followed, generally resulting in suggestions for improving efficiency and strengthening internal financial control.

The subject of management of local union funds embraces a great deal more than has been outlined here. The surface has only been scratched. The suggestions made in this paper would, of course, have to be tailored to meet the particular local's needs. In any case, sound financial management can best be achieved by means of a carefully designed accounting system operating under the guidance of competent personnel.

Should the Accounting Supervisor Work with Detail?

by W. A. KIBLER*

SHOULD SUPERVISORS SPEND all of their time in the performance of supervision, part of their time or very little of their time? Certainly, the degree of supervision is different with every type of industry. Different departments within one company must be supervised in different manners. In small companies, it is not feasible to have anything but working supervisors who perform all functions of the business in addition to supervising the remaining employees.

Let us look in on an accounting supervisor who is performing much of the detail work in his department himself. Is this department operating at its greatest efficiency? It is, no doubt, functioning with the minimum of employees and management above this supervisor can rest assured of a good, accurate answer to any questions or problems arising about the work in the department, as so much is done by its head.

However, contrast these benefits with a few of the inefficiencies present. No time is left for the supervisor to better his department's procedures. Probably no one is being trained to succeed the supervisor. Further, employees doing the better jobs are not always recognized. A supervisor who is "buried" in detail cannot possibly do justice to all the functions in his department.

Now let us look in on an accounting supervisor who does none of the detail work in his department. Most of the inefficiencies mentioned above are not present here. Procedures are as current as possible because the supervisor has had time to review them. He has avoided inequities among personnel and the work is evenly divided. However, this supervisor may not keep abreast of the workings of his department because he is too far away from the detail. He may be embarrassed quite frequently because he cannot answer simple inquiries from top management. He may make decisions reflecting lack of knowledge of his own department.

It would appear that a supervisor who is able to take the road down the middle between these two extremes would be the most successful supervisor. Just how this would be done is the hard problem to solve.

* Supervisor of General Accounting, Whirlpool Corporation, Evansville (Indiana) Division.

An Integrated Approach to Control of Production Costs

by WILLIAM L. FERRARA

THE USUAL APPROACH to cost control, which proceeds from the accumulation of dollar variances to an analysis of causes underlying the variances which are then to be eliminated, places the variance reports of flexible budgeting and standard costing in a position of pre-eminence in the field of cost control. Cost control is assumed to proceed or start from the variance reports, which are viewed as a form of watchdog or blinking light that is supposed to snap at or issue a warning upon the occurrence of waste, which must then be eliminated or "shut off." Thus, it is seen that the traditional approach to cost control is limited in the sense that it does not give rise to control where it really counts, that is, before conditions get out-of-line or as conditions are getting out-of-line. Traditional cost control is really after-the-fact cost control; waste is assumed to occur before cost control can perform its function of eliminating the continuance of waste.

Physical vs. Dollar Approach to Cost Control

It is significant to realize that dollar standards of standard costing and flexible budgeting actually rest upon a foundation of physical standards. These physical standards relate to the quantities of such things as materials, supplies, labor hours, machine hours and service department capacity which are necessary to meet given amounts of production. In the ideal business framework, standard costing and flexible budgeting amount to nothing more than attaching a dollar sign to physical standards.

One of the basic reasons why dollar reports are late, i.e., so long "after the fact," is that they have to be analyzed into the physical factors which brought forth the out-of-line condition. Here is a possibility of reducing the time element which occurs between the occurrence of waste and its discovery in a control report.

Through the use of such physical reports as excess materials requisitions and

---

WILLIAM L. FERRARA, Sangamon Valley Chapter, 1959, C.P.A., is Assistant Professor of Accountancy, University of Illinois, Urbana, Illinois. He previously taught at Michigan State University. For a few years, Mr. Ferrara was associated with the firm of Harris, Ream and Ambrose, C.P.A.'s, Lansing, Michigan. He holds B.S.C. degree from DePaul University and M.A. and Ph.D. degrees from Michigan State University. The present article was developed on the basis of the author's doctoral dissertation.

Physical Reports for Materials

Excess Materials Requisition

Date May 10, 1959 Dept. Machine Shop

Authorized by Foreman Received by Worker

Quantity	Code	Article	Price	Amount
25 sheets	S-180	Steel Sheet 45" x 90"	1.50	37.50

Daily Yield Report

Department	Units of output	Actual units of material used	Standard units of material	Excess usage
1	800	1600	1800	(200)
2	1000	2500	2600	(100)
3	900	1800	1850	50

EXHIBIT 1

yield reports for materials (Exhibit 1) as well as performance and idle time reports for labor (Exhibit 2) reporting of off-standard conditions can be made more timely. Use of physical reports eliminates the time which is necessary to convert dollar reports into the physical factors which underlie them. For this reason, the control of direct labor and direct materials by means of physical standards and the almost complete abandonment of pecuniary data for control purposes have been long advocated by some writers. One of them, Billy E. Goetz, *(Management Planning and Control,* McGraw-Hill Book Co., Inc., 1949, 294 pp., and "Tomorrow's Cost System," *Advanced Management,* December, 1947, pp. 172-8), makes one concession to pecuniary data in the area of overhead cost control where he recommends a combination of physical standards and flexible budgeting. The flow of and the difference between the dollar and physical approaches to cost control can be illustrated as shown on Exhibit 3.

Physical standards are certainly useful for cost control purposes but they

PHYSICAL REPORTS FOR LABOR

Daily Performance Report by Employees

Employee	Actual producing hours	Standard hours of output	Per cent performance
105	8	10	125.0
110	6	7	116.7
112	5	4	80.0

Daily Performance Report by Departments

Department	Actual producing hours	Standard hours of output	Percent performance
1	110	90	81.8
2	280	300	107.1
3	150	145	96.7

DAILY IDLE TIME REPORT

Department	Total direct labor hours	Productive direct labor hours		Idle time due to							
				Maintenance		No material		Other		Total	
		Amt.	%	Amt	%	Amt.	%	Amt.	%	Amt.	%
1	3200	2900	90.6	200	6.2	50	1.6	50	1.6	300	9.4
2	1300	1200	92.3	25	1.9	25	1.9	50	3.9	100	7.7
3	600	550	91.7	20	3.3	30	5.0			50	8.3
4	200	180	90.0	10	5.0			10	5.0	20	10.0
Total	5300	4830	91.1	225	4.8	105	2.0	110	2.1	470	8.9

EXHIBIT 2

have two limitations which are also inherent in dollar standards. In the first place, reports in physical terms refer still to the past. They are not as ancient as dollar accumulations tend to be, but their limits are the same; they can only lead to improved *future* performance. The other limitation of physical standards is that the information obtained relates only to a part of a truly effective cost control system. A limitation of physical standards which is not inherent in cost accumulations is that physical standards cannot aid in the process of controlling input prices. Physical standards aid only in the control of physical usage. Furthermore, control of usage with physical standards can be complemented effectively with pecuniary data in order to illustrate the impact of waste to operating people. A knowledge of input prices can also help operating people in directing their effort towards greater cost savings.

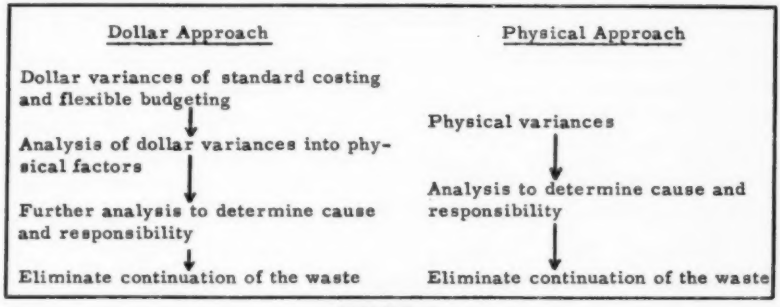

Dollar Approach
Dollar variances of standard costing and flexible budgeting
Analysis of dollar variances into physical factors
Further analysis to determine cause and responsibility
Eliminate continuation of the waste
Physical Approach
Physical variances
Analysis to determine cause and responsibility
Eliminate continuation of the waste

EXHIBIT 3

Neither dollar nor physical standards provide all the necessary ingredients for truly effective cost control. Many accountants make their mistake when they rely primarily on dollar accumulations; Goetz and those who are impressed by his arguments make a mistake, it seems to me, when they rely primarily on physical accumulations. Further, they do not recognize that it is possible to avoid approaching cost control with the question, *what must we do now,* after we have taken the precious time to find out what went wrong in the first place! The appropriate question which defines the correct approach is, *what has gone wrong* and *what has already been done* to eliminate those factors giving rise to out-of-line performance? This more effective approach can be appreciated only in the light of the organization structure and its various levels which will bring into focus an integration of cost and physical standards and an appreciation of the true position and importance of dollar accumulations in the overall cost control framework.

The Integrated Approach; Lines of Defense

At best, the ideas to be expressed here are simply a statement pulling together the contributions of every facet of the business organization as they relate to cost control. The approach of traditional cost control through dollar and/or physical variances most likely implies many of the ideas to be expressed below. It is unfortunate, however, that the most important aspects of cost control are left to implication and are not brought together in such a way that the proper position of cost accumulations can be fully appreciated.

For purposes of illustration, it is to be assumed that there are six levels in the organization structure. Each of the levels is to be considered a line of defense against out-of-line performance. The line closest to actual production is considered first; the line furthest away from actual production is considered last. The function of each line of defense is to detect out-of-line performance and ask those in prior lines of defense *what went wrong* and *what has already been done* to correct out-of-line performance. The first line of defense cannot ask these questions, for its function is to eliminate out-of-line performance before it starts. The cost control function of subsequent lines is to detect the out-of-line performance that may have occurred and to find out whether the necessary correctives have been applied and, if not, to apply them immediately. The lines of defense can be identified as follows:

Proximate	*Intermediate*	*Remote*
Worker	Plant superintendent	President
Foreman	Manufacturing vice-president	Board of directors

First Two Levels — Visual Observations and Direct Action

For each line of defense the type of information required is different. Knowledge of expected results in physical and dollar terms, visual observation, accumulations of out-of-line performance in physical and dollar terms, and even the traditional income statement, all play a part in cost control. At the worker's level, visual observation is paramount. A keen eye used by a worker who has a sense of responsibility and a knowledge of his task can spot impending trouble or those conditions that would inhibit the attainment of expected performance. For instance, a machine that is beginning to "act up," preceding operations which are moving too slowly to assure production continuity and an impending lack of materials are factors which can be overcome before they result in out-of-line performance.

At the foreman level, visual observation is also important but it can be complemented by reports in physical terms. The foreman oversees the work of many, so visual observation must be on a sampling basis. With this in mind, reports of physical progress such as yield reports or performance reports play an important part. These physical reports are utilized to make up for the necessarily limited observation. A knowledge of pecuniary data related to the physical reports can also be of importance at the foreman level. A perfect application of a knowledge of pecuniary data would occur in those ever-present situations where the foreman must allocate his time in such a way as to yield the maximum benefit. In other words, a foreman must have a knowledge of pecuniary data in order that he can direct his efforts towards the greatest cost savings or the greatest sources of waste.

The foreman's position is the second line of defense. He must be in a position to identify visually any potential sources of out-of-line performance that workers fail to recognize and also identify actual waste (visually and from reports) in order to find out what has already been done to eliminate it. If nothing has been done, the foreman should take appropriate action. Thus, it is seen that the foreman's position is secondary if the worker has a sense of responsibility and a wary eye. Without the aid of the worker, for one reason or another, the foreman would be a second-best choice for the first line of defense.

Next Two Levels — Action Based on Analyzed Reports

The plant superintendent is ordinarily not in a position to make very extensive visual observations, so he must rely heavily on reports comparing expected and actual performance in physical and dollar terms. These reports are usually summaries of reports given to foremen and may also be prepared less frequently

than reports given to foremen. Physical and dollar reports are both important to the plant superintendent—physical reports, since they represent the language of the shop, and dollar reports, since they facilitate choices involving the most effective utilization of time and an understanding of the profit impact of waste. Again, though, the position of the lines of defense behind the first line is the same, that is, to find out what has already been done to eliminate detected waste, and, if nothing has been done, to institute procedures necessary to eliminate the continuation of the wastes that earlier lines of defense failed to recognize and eliminate.

The manufacturing vice-president presumably has under him a number of plants. Visual observation in his case is of little use. Physical and dollar reports that compare actual and expected results are the most effective control media he has. These reports are summaries for each plant as a whole, based on the more detailed and more frequently prepared reports that are given to plant managers. At this level it is more than likely that dollar reports are as important, if not more important, than physical reports, for the manufacturing vice-president is at that level where profit-and-loss responsibility and the dollar impact of waste is beginning to be emphasized. As in all prior lines of defense, the point of view is to ask the question what has already been done to eliminate detected wastes. An important factor is that analyses of physical or dollar variances should not be necessary; under the broad cost control system recommended here, the analysis already exists in the hands of prior lines of defense.

The Two Highest Levels — Summaries of Dollar Variances

The president's position is one of profit and loss responsibility in the fullest sense of the word. To him highly summarized physical data concerning plant operations can be given but more important than this is the dollar data given in the form of standard cost and flexible budget variances. Dollar data illustrate in the best possible way the full impact of waste to the dollar-minded top executive and prepare him for the questions that are bound to be asked by the board of directors when they receive the company's income statement showing what income was earned and what happened to the income that should have been earned (variances). The income statement which includes the variations from standard costs and the overall flexible budget reports yields the sixth line of defense, which is the point where dollar variations are of greatest significance. As usual, there is no need for detailed variance analysis at this point because the variances as calculated are summaries of already existing physical and dollar reports prepared for the more immediate lines of defense. Also, the

controls applicable to these variances relate to the usual question of what has already been done and, if certain items are found to have been overlooked, they will then be considered.

Each higher level of defense becomes more and more remote from the operating departments where the actual control should take place. The only purpose of the more remote lines of defense is as a check on the effectiveness of the more immediate lines of defense. The more effective the immediate lines of defense are, the less important are the more remote lines of defense. In some cases, then, the more remote lines of defense can be and are taken more casually, and may even be ignored. The more remote lines of defense emphasize the cost accumulations related to standard cost accounting and flexible budgeting. The general position of these cost accumulations and their proper context in the broad framework of cost control should now be better appreciated.

Cost Control at the Planning Stage — and by Stockholders!

The foregoing description of six lines of defense could easily include a number of other factors. Some of these are prior to the worker's position and some come after the board of directors. In a sense, the activities prior to the worker-level of control are even more fundamental to cost control than the lines of defense. Among these possibly more fundamental activities, which can be summarized under the title "preventive cost control," are the three categories of personnel administration, engineering and production control.

In the case of personnel administration, there must be effective hiring and placement policies at all organizational levels. The right man for each job is the major goal here. Very closely related to this is the engineering function of determining expected performance. In other words, there must be a knowledge of the physical relation between the various types of inputs and outputs. This knowledge is preferably determined on the basis of engineering studies. Past results could also form the basis of expected performance. However expected performance is determined, it should be made common or available to all levels in the organization. Production control activities are also very essential to cost control. Proper production planning and control yields the appropriate quantities and qualities of inputs at the appropriate time. There is really no end to the relationships between the operating and facilitating agencies of an industrial firm as they relate to cost control. It is believed, however, that the more important aspects have already been noted.

Beyond the level of the board of directors, there are the stockholders who can also be related to the overall cost control framework. The stockholders do not receive a report of income that includes variances from standard costs but

the income statement they do receive is the result of all the firm's activities and therefore, if understood properly, a measure of waste. If stockholders are not satisfied with the firm's progress, they can put pressure on the board of directors to make more intensive efforts to increase income by increasing sales and/or decreasing waste. The stockholders could possibly force a change in the make-up of the board of directors or perhaps, if nothing else could be done, they could give up and dispose of their stock. Thus the stockholders can also become, at least to a limited extent, a line of defense against out-of-line performance.

Resulting Change in Attitude — Basic Improvement

The six lines of defense explained above should illustrate that both dollar and physical accumulations have a place in the broad framework of cost control. However, more important than either is the visual observation of workers and their foremen. In addition, that combination of factors which has been described above as preventive cost control is without doubt more important than visual observation. With the first line of defense visual observation is most important. The sixth line of defense, on the other hand, is aided by a report of income that shows what income was earned and what happened to that income which should have been earned; physical standards being more important at the more immediate levels, dollar standards at the more remote levels, as illustrated in Exhibit 4.

Of primary importance in the integrated approach to cost control is the basic change in attitude in which the questions related to variances become: what went wrong and what has already been done to correct deviations in expected performance? The old question of what must we do now (after we take the time to find out what went wrong) is thus seen to be clearly inappropriate.

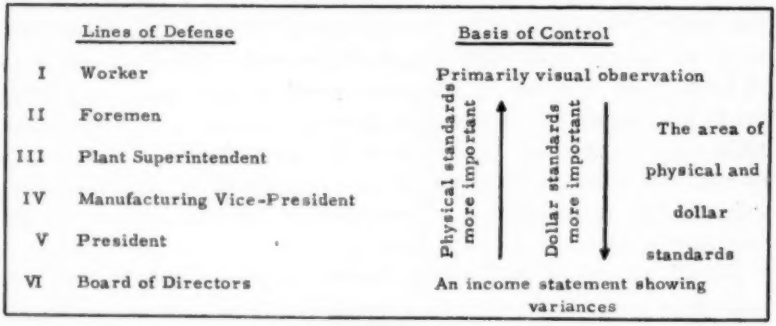


EXHIBIT 4

Reversed Flow of Control Portrays the Change

In addition to the change in the questions related to cost control, there is another very important change inherent in the integrated approach to cost control. Under the traditional approach, cost control begins with a variance report, which is then analyzed as to cause and responsibility in order that the detected waste might be "shut off" or eliminated in the future. Under the integrated approach, cost control ends with variance accumulations which means that the basic flow or direction of cost control is reversed, as shown in Exhibit 5.

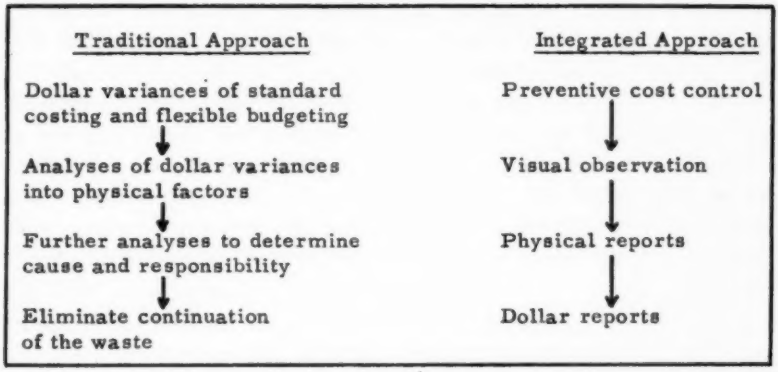

Traditional Approach
Dollar variances of standard costing and flexible budgeting
Analyses of dollar variances into physical factors
Further analyses to determine cause and responsibility
Eliminate continuation of the waste
Integrated Approach
Preventive cost control
Visual observation
Physical reports
Dollar reports

EXHIBIT 5

Control of manufacturing costs starts with preventive cost control, continues with visual observation and ends with variance accumulations. Preventive cost control attempts to stop waste before it starts. Visual observation by workers and supervisors stops waste before it starts or as soon as it is detected. Physical variance accumulations detect wastes which have evaded visual observation. Dollar variance accumulations occupy a residual position and show the profit impact of waste.

The integrated approach to cost control, as described here, deals only with usage of the factors of production. It would not be too difficult to use the same overall approach with regard to the control of input prices.

We Learned the Same Lessons

by WILLIAM J. FOX*

THESE COMMENTS are in response to Mel Cook's article, "Five Ways of Discrediting Standard Costs—And the Lessons They Teach" *(N.A.A. Bulletin,* August 1959). I had to read the article several times before I could believe my eyes. The subject matter covered is well known to most accounting personnel but very seldom admitted by this same group. We reproduced this article and circulated it among our inventory loss committee members and the results were very satisfying.

I would like to make particular reference to the standards-are-wrong approach referred to by Mr. Cook. This really "hit the jackpot." For years, our accounting staff had been on the defensive and case after case had to be proven before the offense got rolling and we could adequately stand up for our standards. Many serious problems were overlooked or postponed because a few clerical errors or minor discrepancies clouded the atmosphere.

The production count technique of discrediting standards has been my pet "peeve" for several years and only recently we have proved without a doubt that incorrect counts were being submitted in some instances. This was no easy problem to solve and hundreds of hours were spent checking and rechecking. We now have electronic counters on some operations and physical counters on others. Re-work going into a department must be accounted for by units as well as dollars in the indirect labor account.

The incomplete coverage loophole in standards was another sore spot in our system until we insisted on estimated standards on all products. These standards, although estimated, have teeth in them and are strictly adhered to or revised accordingly. Now the only jobs not on standards are special customer orders which have pre-estimates and are done on a job order basis. These represent less than one percent of direct labor and are done in a special job order department.

While Mr. Cook's article may seem to be "old stuff," I am sure that a good many accounting supervisors would do well to review the points he emphasizes, to be sure they have not been neglected. In some respects, the relationship between accounting and manufacturing is like a game—commit one error and you soon find the other team has won the ball game. Properly handled, standard costs will do themselves credit in almost every instance.

---

* Cost Accounting Manager, Royal McBee Corporation, Hartford, Connecticut.

"Off-Site" Cost Control

by JOHN B. MORGAN

A RECENT ARTICLE referred to the term "count-down accountant". To almost all of us, this is a rather new term in the accounting vocabulary. The article was referring to the accountant or cost control man responsible for the accounting functions necessary to the conduct of business at an off-site base operation in the ever-expanding field of missilery. At Convair-Astronautics, a Division of General Dynamics Corporation, we have been exploring in this new field of accounting operations for the last three years and have developed some interesting organizational and operating patterns.

Convair-Astronautics has its main operations at San Diego, California. The controller's organization at this home base numbers over four hundred employees, including a large and efficient data processing section. It is here, at San Diego, that the Atlas missile is manufactured and that most research, development and engineering take place. However, we realized at the outset that the responsibilities of the controller's organization could not stop at the San Diego city limits.

Types of Off-Site Operations

We were faced with the problem of conducting operations at many locations throughout the country, each location in the nature of a small or medium-sized manufacturing, engineering and service organization. These operations might be manned by from four hundred to one thousand employees, and have a build-up from zero employees to five hundred or one thousand employees in a period of a few short months. Likewise, they could contract from the peak numbers suggested to zero in a matter of twelve to eighteen months. Our basic question was: how should we plan for proper accounting, cost controls and other controller-type services for such operations?

Our off-site base operations follow two patterns. In the first instance, we have what are known as test bases. The flight test operations bases are located on the East and West coasts, using the various ocean missile ranges; the static

---

JOHN B. MORGAN, San Diego Chapter, 1957, C.P.A., is Chief of Off-Site Accounting for Convair-Astronautics, an operating division of General Dynamics Corporation. Previously, he held positions of Budget Administrator with his present company, Administrative Accountant at Temco Aircraft and Navy Cost Inspector in Charge, Dallas District. Mr. Morgan is a graduate of Notre Dame University where he later taught as Assistant Professor of Accounting.

test facilities are located inland, usually in some remote location. Test bases are of fairly long duration, manned primarily by company employees. These operations will generally be a company responsibility for the entire life of the base.

In the second instance, we have various operational bases throughout the country, the task of which is quite different from that at a test base. At an operational base our task is to activate the base and install the various systems and equipment. We must then try these systems, check them out, train Air Force crews in the operation of the equipment and then turn the entire facility over to the Air Force. Our responsibility at an operational base may span only a matter of months.

Special Operating Problems

All of this sounds a bit more intriguing and challenging than the usual debit and credit chores of the average accountant—and it is. The very nature of the operations, the time span, the remote locations and the distance between administrative locations and the operational pads or test stands make for many problems of operation and organization unheard of in normal accounting functions. The accountant assigned to this situation must be flexible enough to perform his recording duties, maintain his controls, accumulate his documentation and arrive at practical decisions on costs and cost classifications, all this without hindering the program or slowing up in any way the often almost unattainable timetables and schedules necessary for required performance.

At the off-site operations, decisions must be made in a timely manner, often without the many helps and hints that are available in the conventional accounting department. They must be made with the knowledge of how they affect the base overhead rate, how they fall within the negotiated prices, and how they comply with overall established accounting policies and procedures. In addition, these decisions must stand the scrutiny of internal audits, audits by the Air Force and audits by the General Accounting Office. While all the forms and procedures that may be used in a large home office organization cannot be followed in a literal sense, the basic requirements as to policy, procedure and paper work documentation must be adhered to.

A typical event is to expedite the replacement of materials or parts which have failed either in systems checks or actual missile count-downs. Normal paper work routines cannot keep pace with the test activities. Phone calls and verbal assignments succeed in getting the equipment on time to meet test objectives and schedules. But accounting documentation for labor and materials,

and decisions as to allocations of cost must often be accomplished on an after-the-fact basis by the off-site cost control personnel.

Cost Control at a Test Base, Its Organization and Function

Exhibit 1 shows a typical cost control functional type of organization for a test base. This organization differs to some degree from that of an operational base by the very nature of the activity. Test bases are usually working on several programs. These bases are more absorbed with research and development type of task, with heavy emphasis in engineering and test procedure, and test reporting functions. Operational bases are engaged in the installation, calibration, validation and certification of the finished equipment and its related systems. It should be pointed out, too, that not every base has exactly the same functional organization though they generally follow the same pattern.

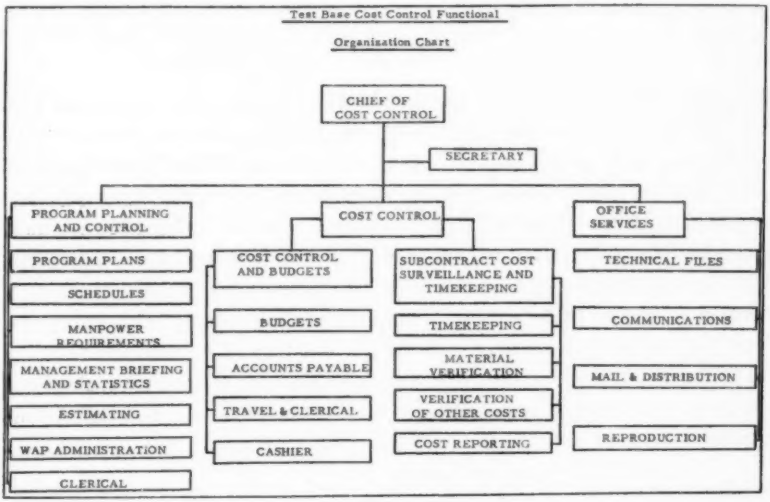


EXHIBIT 1

As illustrated in Exhibit 2, the cost control function reports directly to the base manager. This is extremely important—much the same as a company's internal auditors reporting directly to the president or board of directors. The cost control man, while reporting directly to the base manager, is the controller's representative at the base. Organizationally, he has direct liaison with the division controller through the home office function of the chief of off-site accounting. This home office function has a two-fold purpose. First, the

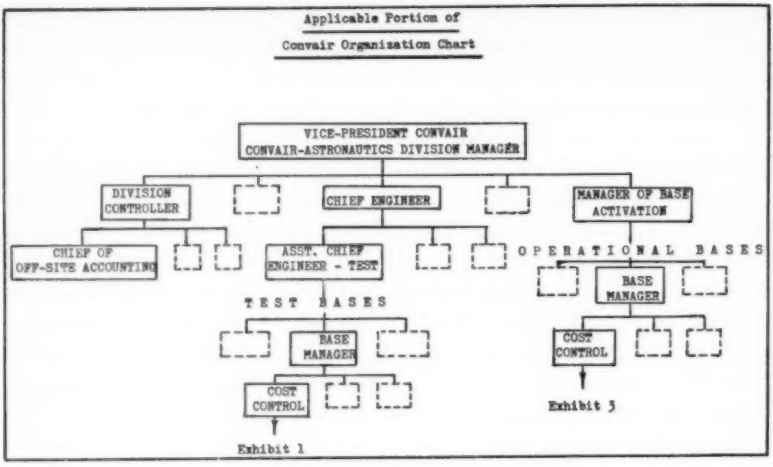


EXHIBIT 2

home office may act as a stabilizing influence between the cost control man and the base manager when the cost control man may be subject to pressure from base management in the heat of getting the job done within tight schedules. The chief of off-site accounting can attempt to cope with these attitudes, should they develop, and see that company policies and procedures are met. Secondly, the chief of off-site accounting at the home plant represents the base cost control men. He is on a level with other chiefs of accounting and a member of the controller's staff. It is his responsibility to see that base problems get their proper attention and are not side-tracked or overlooked.

As the accounting authority and the controller's representative at the base, the cost control man is responsible for three major areas of functional responsibility:

1. Cost control.
2. Program planning and estimating.
3. Control of office services cost.

This type of functional organization may vary from base to base but the above areas are quite typical.

In most instances, the base manager will not approve certain expenditures without first counseling with his cost control man. With proper cooperation and support from the base manager, the cost control man is truly a base controller.

Particulars of the Responsibilities

Cost control encompasses all of the normal accounting type functions for which the base is responsible:

1. Payroll verification and distribution.
2. Audit and review of claims for travel expense reimbursement. This requires intimate knowledge of per diem, relocation and mileage policies and procedures presently in effect for base personnel. These policies can vary from base to base.
3. Accounts payable, including the assembly of necessary paper, verification of purchases, approval of vendor invoices and transmittal of paper to home office for payment.
4. Cashiering operations, including the acquisition, safeguarding, reimbursement and recording of transactions involving cash and travelers checks.
5. Budget preparation and reporting for both direct and indirect types of expenditures, by account and by project.
6. Statistics and reports, including such charts and reports as the home office and the base manager may require for aid in the financial and cost control of the base.
7. Responsibility for the proper coding of accounting information, and the determination and classification of expenditures.
8. The usual timekeeping and time-audit functions of any well-functioning accounting organization. Timekeeping may be extremely complicated by remote locations, working of abnormal shifts and other abnormalities of test base operations.
9. Finally, and of growing importance, is the function which we refer to as cost surveillance of subcontractors.

Recent determinations have shown this surveillance to be a natural function of cost control, particularly with consideration of the fact that under the "weapons system concept" construction, systems installation and maintenance performed by subcontractors comprise a large portion of the task at base operations. In this area, the responsibility is somewhat comparable to construction accounting in respect to need for review of the labor force in action. This is accomplished through floor checks and task checks of subcontract labor, physical review of utilization of rental equipment, material checks, etc. The cost surveillance responsibility of the cost control man at a base will undoubtedly be an increasingly important task in the days ahead.

Program planning and estimating consists of what in normal engineering organization would be referred to as the P. & E. group. It deals with:

1. Forecasting of manpower requirements.
2. Scheduling of programs.
3. Providing historical cost data and estimates of direct labor hours for new tasks or changes in present ones.
4. Preparation of up-to-date control organization charts.
5. Program statistics and other data so frequently required for graphic presentation.

Because of the close relationship between recorded data on past performance and future estimates and their deep effect on cost control, it appears logical in a base operation that these functions be a responsibility of the cost control man.

The administration of office services is a typical office management type function encompassing the normal office services functions of:

1. Mail service and operation of the teletype system.
2. Operation of various types of reproduction equipment such as ozalid, zerox, and other multilith and duplicating services.
3. Central distribution of paperwork reproductions.
4. The maintenance of the technical files of various test reports and operational procedures.

Office services is a very heavy responsibility, particularly in the area of reproduction, since in many instances we perform this service not only for ourselves but for our associate contractors. Although this function is not under cost control at all of our bases, we feel it is a logical cost control task because it is an office management type of chore. Also, with the volume of paperwork generated, controls over paperwork have a direct effect on costs. We find, too, that many times decisions must be made as to whether a job will be done "in the house" or subcontracted. The background of cost control type of personnel aids greatly in making these decisions.

Responsibilities at Operational Bases

Exhibit 3 shows the organization of a typical operational base. It differs only slightly from the organization at a test base; in fact, the difference is in only two areas. First, because of the much heavier subcontractor task of maintenance and systems installation at operation bases, we believe that increased emphasis must be placed on cost surveillance of subcontractors. This is given greater functional responsibility in the operational base organization. Secondly,

since the operational base generally involves only one major program and has less research and development and engineering responsibilities, we do not put the same emphasis on program planning as at a test base. Time may show a need for change in this type of organizational set up but currently the program and planning functions for operational bases are being carried out in a limited staff capacity to the base manager.

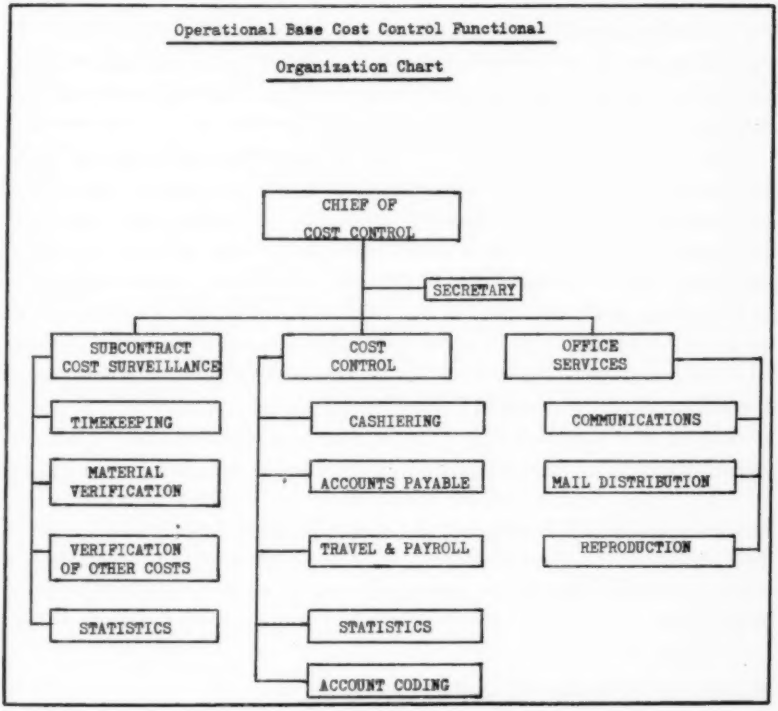


EXHIBIT 3

Centralization vs. Decentralization

The question of degree of centralization involves a general review of the organizational structure. It might be well to mention some of the problems that have affected our decisions as to how meager or extensive these functional tasks should be and whether we should approach the problems from the point of view of centralized accounting or decentralized accounting. It should be pointed out that we have attempted to centralize our accounting relying on the

facilities and services back at the home base to service the off-site bases wherever and whenever possible. We believe that a rather substantial savings in manpower and machines can be accomplished by the use of centralized accounting services in a widespread and varying time-span operation such as we have.

At the present time, we have full accounting operations off-site for the payment of travel expense accounts and payroll only at our base at Cape Canaveral, Florida. The great distance from the home base in San Diego and the size of the base complement makes this decision a necessary one. The cost control function in Florida which has the complete responsibility for the entire payroll and travel operation, has conducted these operations both efficiently and economically.

With this exception, we are inclined heavily toward centralized data processing services as far as our base operations are concerned. Payrolls for all other bases are at this time being handled by the data processing and payroll departments at the home base in San Diego. Before this decision was made, particularly with regard to some of the operational bases, several alternatives were studied. The cost as well as the duration of the particular base operation were considered and these factors were then weighed against the cost and additional requirements placed on our home base data processing and payroll functions. We also considered the possible use of certain business service bureaus in areas close to a base, to process the payroll for us. Finally, we considered the establishment of a central payroll office in the area of several bases, to service them. So far, we have found the use of our home base accounting services practical and economical. As additional bases become operational we will continually review this problem, since the way to good base morale is a timely pay-check. This is one schedule we can never afford to let slip for any reason.

Payments to Employees and Suppliers

In order to make our on-site services work timely, it was necessary to go to a Friday night cut-off of timekeeping at the bases and to see that time cards were promptly submitted to the home base. In the home office, it was necessary to set up a special off-site timekeeping and payroll desk and to give the handling of these cards priority in machine time in data processing. So far, we have met with reasonable success in the timely payment of personnel at off-site bases.

We have considered several alternative methods in the case of a dire emergency—should the plane go down or the mail not get through or the snows bog down our system. We think we have some pretty fair alternatives, from

wiring money and having a local bank write cashiers' checks to a teletype check written by the home base for each off-site employee. We hope we never have to tax our emergency procedures but, if we do, we think we will be able to cope with the situation.

Our experience with the payment of travel expense accounts, though not as timely as payroll payments, has been working very satisfactorily under centralized accounting procedures. The reports are submitted, reviewed and approved at the base and then presented to the home office for payment.

Accounts payable is another area where centralized accounting has worked very well. Invoices are matched, reviewed, audited and approved at the base, and submitted to the home base for payment. With few exceptions, off-site base bills are paid in a timely and efficient manner.

We have, of course, petty cash funds and supplies of travelers checks at our bases. Many minor items requiring quick processing for payment, such as freight bills (which under I.C.C. regulations must be paid in a minimum of seven days), can be handled quite satisfactorily through the use of a petty cash fund. The establishment of part of this fund as a petty cash checking account is now under consideration. This could prove to be a convenient means at our disposal to wire funds from the home base and permit emergency payment of payrolls should our present emergency procedures prove inadequate.

Hiring and Training for Cost Control

Since responsibility for control rests heavily on the controller, we have found it valuable to supply from the controller's organization the key man or men to head up the cost control operation at each off-site base. If such personnel are not available in the home office, then we do our best to hire personnel locally, at the base site. We then bring these employees into the home base for two to four months of training in our way of doing business. While they do not learn all there is to know about company policy and procedure, and nothing can really replace the experience gained on the job, this training has proven quite effective in supplying qualified personnel to meet the ever-increasing cost control requirements in off-site base operations. Base management and base activation functions are learning to look to the controller's organization to supply the necessary leaders in cost control fields. This is a healthy sign.

Two of the greatest responsibilities the cost control man has are those of education and salesmanship. Many base managers, supervisors and employees with only a modest concern for costs have become very cost-conscious and control-minded individuals, thanks to the salesmanship of our cost control

people. We like to think we are doing a good accounting and cost control job and we are constantly working to improve our effectiveness. But, in this changing world, problems are numerous and complex; what suffices today may be of no use tomorrow, what was good control yesterday may be license today.

Ready to Meet New Challenges

We do not have all the answers, and there is much yet to be done, but we have made great progress toward a tested organization of accounting and cost control. When the day comes that the division controller requests a man to fill the job of chief of cost control on Space Platform No. 1, we are confident we will have good cost control men ready to meet the challenge, even though they may have to learn to post ledgers in gravity-free outer space—literally and figuratively "out of this world".

Construction Contracting with a Cost-Saving Incentive

by WILLIAM R. CLARK

OVER MANY YEARS of expansion, our company has experienced a considerable number of construction programs and the resulting problems in controlling construction costs. During this time, cost-plus and low-bid types of contracts have been used and both, on occasions, have proven unsatisfactory in certain aspects.

The disadvantages of using a cost-plus contract are many, the first being the uncertainty of the final cost. Secondly, administrative costs are greatly increased, since such a contract requires detailed checking by accounting and engineering personnel. Another disadvantage, experienced by many familiar with this process, is that once workers understand that the contractor has a cost-plus contract, they then tend to slow down their work pace. A cost-plus contract seems to be advantageous only when the construction is of such a speculative or experimental nature that either no contractor will risk a bid or it is apparent that, if a contractor bids, he will add such a premium to his bid that the cost will be exorbitant. In this instance, it is to the company's advantage to take the risk of high cost involved in the cost-plus arrangement.

Under normal circumstances, the low-bid type of contract seems to solve most of the problems. However, the competitive situation in the construction field may considerably affect the bid received. At times, when there is little competition, a premium may be paid. On the contrary, in times of tight competition, when construction work is scarce and a number of companies are bidding for a particular job, a company may cut its bid so low as to risk the danger of bankruptcy in the case of delays or unforeseen difficulties. This danger, with the resulting tie-ups and re-negotiations, can delay completion of the work for months or years and greatly increase the company's ultimate cost.

Having had difficulties with both types of contracts, our company decided to try a modified form of contract, which, we thought, would protect the company adequately, and, also, lessen the possibility of any "wild" bids.

WILLIAM R. CLARK, Raritan Valley Chapter, 1958, is Supervisor of the General Accounting Division of Johnson & Johnson, New Brunswick, New Jersey. Prior to this, he was associated with Chicopee Manufacturing Corporation, New Brunswick, N. J. Mr. Clark is a graduate of Rutgers University, New Brunswick, N. J.

Contracting and Cost Estimate

In reviewing the functions of the general contractor, it was decided that actually the contractor's functions are: (1) to run the job, for which he charges a fee, plus certain actual costs and (2) to function as a buyer of subcontracts for various phases of the work. Taking this into consideration, our company sets up its contract with the prime contractor, so that he bids not on total cost but on the amount which he will charge for (1) his fee, expressed in percentages, and (2) for cost of running the job, for example, field engineers, field accountant, timekeeper, etc. Once the contractor has been selected on this basis, he then presents an estimated total cost based on the completed plans. This cost, which is strictly advisory in nature, is checked closely by our construction department for reasonableness. At this point, we have the following information:

Foundations	$100,000	Estimated
Masonry	50,000	
Carpentry	50,000	
Other	500,000	
Total construction cost	700,000	
Job overhead	50,000	
	750,000	
Fee 3%	22,500	
	$772,500	

The contractor requests bids on all phases of the work. He is required by the contract to get a minimum of three bids for each and his choice of the companies to be solicited for bids is subject to review and acceptance by our company. When all bids on a particular phase of the work have been received, the lowest bid, replacing the contractor's estimate in the contract, becomes the guaranteed maximum cost, as in Exhibit 1.

Subcontracting and Record-Keeping

No contract for work is let out at this point but, rather, the contractor reviews with his various bidders their estimates and attempts to negotiate some figure below the low bid. Since it is felt that one of the services which the contractor performs is in knowing the market and being able to buy subcontracts, if he is successful here, the saving is split between the company and the contractor. This split is normally 20 percent to the contractor and 80 percent to the company. Exhibit 2 is illustrative.

	Original estimate	Guaranteed maximum
Foundations	$100,000	90,000
Masonry	50,000	60,000
Carpentry	50,000	70,000
Other	500,000	530,000
Total construction cost	700,000	750,000
Job overhead	50,000	50,000
	750,000	800,000
Fee 3%	22,500	24,000
Total guaranteed cost	$772,500	824,000

EXHIBIT 1

	Guaranteed maximum	Actual cost
Foundations	$ 90,000	90,000
Carpentry	70,000	65,000 (1)
Masonry	60,000	50,000 (1)
Other	530,000	530,000
	750,000	735,000
Job overhead	50,000	50,000
	800,000	785,000
Fee 3%	24,000	23,550 (a)
	$824,000	808,550
20% of savings of 15,000(1)		3,000 (a)
		$811,550

(a) Contractor's fee $26,550

EXHIBIT 2

Another possibility is that the prime contractor may feel that he can do better by taking a subcontract himself. In such a case, he still must get three bids and the low-bid becomes the guaranteed maximum price. The contractor then works on a straight cost basis; this means that he uses only those costs directly connected with that particular work, for which he must maintain separate cost records. Upon completion of this particular phase, a comparison is made between the low-bid and the actual cost. The resulting saving is split 20 percent to the contractor, 80 percent to the company. If the actual cost exceeds the guaranteed maximum price, the entire overage is on the contractor.

When all phases of the work have been let, we have our guaranteed price. The record-keeping, in most cases, is very simple. For all subcontractors, the bills are reviewed by a company representative, based on the percentage of work completed, and then a 10 percent retainage is withheld until the close of the job. For example, on a $100,000 contract, at the end of the first month, if 10 percent is completed, the subcontractor gets $9,000 (billed $10,000 less retained $1,000). The only review that the company has to make is a review by the engineering staff to see that the completion percentages are in line. The accountant has only to concentrate on those jobs where the contractor's direct costs are involved. The contractor establishes an account for his field work, covering field engineers, field accountants and the general supervision of the job. Payrolls are charged to the overhead account and audited by the company's field accountant. Also, all charges for work are covered by bills audited and reviewed by the field accountant. For each of the subcontracted phases of work done by the contractor, a separate account is set up, which is subjected to a close audit of material and labor costs.

Labor Cost Control

The control of labor costs presents a normal problem of the payroll audit. At the end of each week, the company receives a separate copy of the contractor's payroll, listing each employee and his daily work-hours. The contractor maintains a daily check-in list of all employees, which the field accountant can check. This payroll is controlled by a numbered button system. In the morning, each employee picks up his button which is then checked off by the timekeeper. Twice during the day, the timekeeper is required to circulate through the job and check the button numbers to see that the men are stationed on the job. Then, at the close of each day, every man returns his button. In addition to this, each foreman prepares a daily report of the men working under his control and a breakdown of their total time by the type of work. By checking these two records, against one another and against the payroll, we have established the basis of our control. Actual expenditures are further controlled by the field accountant who occasionally accompanies the timekeeper on his check or makes independent checks from time to time, to see that the records are maintained in an accurate manner. The field accountant also accompanies the contractor's timekeepers in distributing a payroll on at least two occasions. Once having determined that the time is properly accounted for, we also have to be certain that the costs are charged to the actual job, since, under certain circumstances, there might be an advantage to the contractor to shift costs from a job which might be over-expended to one which appeared to be under-expended. The prime source of this check is the foreman's daily time-sheet. We also have a cross-check on this from our own engineers, who keep a daily general log of the work being done, which, by itself, may not prevent a minor shift of time but does give us sufficient information to control any major shift.

Control of Material

The control of material from a strict accounting point of view can present a much greater problem. If material is re-distributed from a centralized receiving point, it is easy to control, though this is impractical when a job covers a large physical area, since the cost of receiving and re-distributing would be prohibitive. However, receiving records on all material can be required, usually on the basis of receipts signed by a foreman or an engineer and checked against the billings for this material. One of the difficulties in controlling this type of material is the necessity of cost allocation. For example, lumber billed to the job and received might be used both for the job overhead classification

and for the individual contracts. It may also be in a form which is used and then re-used for different purposes. Since, in most cases, it is more practical to order such items as lumber in bulk quantities, these materials are distributed on an arbitrary basis agreed on by the construction personnel and the engineering and accounting personnel of the owner. When establishing these controls, careful consideration must be given to all phases, to make certain that the controls do not become more costly, in the long run, than the costs they are designed to monitor.

The material purchased should also be classified in two distinct groups: (1) items which will be consumed on the job and (2) items which will be still usable at the close of the job. The latter are inventoried and a price is established with the contractor, at which the remaining inventory will be credited at the end of the job. For purposes of inventory, we consider only items of a unit value of $10 or more, since small items and small hand-tools frequently "disappear" from a job. At the end of the job, there should be only minor discrepancies between the book inventory and the actual, after a certain percentage has been allowed for breakage and loss of equipment.

Reciprocal Advantages

It might be pointed out that on this type of contract it is definitely to the advantage of the contractor to reduce costs on every phase of the work, since he receives 20 percent on every dollar saved if below the guaranteed maximum; whereas, on every dollar spent, he receives his fixed fee, which is approximately 3 percent.

In all phases of the work, our company has found that it is extremely necessary that the company's engineers and accountants coordinate their work in the control of costs. In addition, the accountant should be a full-time employee on the job, and not restricted by operation out of the home office. The accountant is in an excellent position to learn much by his contact with construction personnel and by frequent trips around the job.

With the presented type of contract, the owner protects himself against both the uncertainty of a cost-plus contract and the dangers of the competitive situation in a bid contract. At the same time, he allows the contractor a fair return, with little risk. Thus, we have a contract which is easily administered and fair to all concerned.

Eliminating Waste Is Everyone's Job

by O. M. WILLIAMS*

MOST PEOPLE would agree to the title statement above but it usually does not work that way in practice, mainly because no organized approach is adopted. Traditionally, accountants have hammered away at rising office and clerical costs for many years, individually and collectively. To accentuate this effort and to supplement all the other cost reduction efforts under way, we, at the Peoria Plant, Caterpillar Tractor Co., have developed a methods improvement program, really a work simplification program, because it embraces the concepts and techniques propounded by leaders in this field.

Unless top support of such a program is obtained, results will only be mediocre; therefore, a presentation was made to the plant manager and his department heads, describing the content of a course in work simplification and pointing out the desired objectives and expected benefits to be achieved by means of the participation-by-all concept. After receiving encouragement from the top management group in the Peoria Plant to proceed, the finishing touches were applied to the course material which included preparation of appropriate visual aids. To date, the program has been presented to over 400 management persons and approximately 200 clerical employees. The supervisory group participates in a series of nine meetings while clerical employees are scheduled for a series of three consecutive conferences. In these meetings, the philosophy and techniques of work simplification are discussed as follows:

Definition. The program signifies participation by everyone in finding easier, better and simpler ways of doing our jobs; it means expanding the concepts of methods improvement to everyone, not confining the job of making all improvements to a group of specialists.

Objectives. Establishing a climate of open-mindedness is the number one objective. The mind is just like a parachute—it does not work unless it is open. Finding the one best way to do a job may suggest changes, and people, by habit, are all for change as long as it does not affect them personally. However, this situation largely ceases to be a problem when improvement ideas are submitted and developed by the originators. This is accomplished through the use of a work simplification proposal form which includes a description of the proposal and expected benefits. If considered necessary, flow-process charts of the present and proposed method are attached to help sell the proposed change. This procedure enables the participant to receive recognition and credit for his efforts to improve work. Also, he will help make the new method work, because he was instrumental in providing the solution. When the climate has been established and the desire to help in the battle against waste has been stimulated, active participation at all levels is well on the way.

Techniques. Four meetings are devoted to explaining the use of work simplification tools such as (1) flow-process chart—for charting the present and proposed method, (2) task list—used by participants to summarize their duties, usually covering a week's period, (3) activity list—summary of all activities or functions, (4) work-distribution

* Work Simplification Coordinator, Peoria Plant, Caterpillar Tractor Co., Peoria, Illinois.

chart—recapitulation of functions and individual responsibilities which is scrutinized critically to help find and develop improvement possibilities and (5) five-step approach to problem solving:

a) Select the situation—bottleneck jobs, those causing too much "chasing around," those that appear to take too much time.

b) Get the facts—use the flow-process chart.

c) Analyze the facts—use the questioning attitude about each step in the process.

d) Develop the improvement—Is it productive? Does it have smooth flow? Can it be simplified? Can it be eliminated? Combined with another operation? Can the sequence be changed? Asking these questions inevitably leads to improvement.

e) Apply the improvement—assuming that the proposal is sound, it should be ready for installation and will run smoothly if affected persons have helped develop the new method or the changes, if they have been kept informed and consulted and, finally, if you have given credit to those who have made a contribution.

Creative thinking. One of the most prolific sources of ideas stems from two meetings on the subject of creative thinking. Here again, we are trying to create a state of mind, an attitude of open-mindedness which is necessary before new ideas are considered or tried, an attitude of "let's give it a try." The ideas to improve work proposed in these sessions are evaluated. Then the worthwhile ones are submitted either as work simplification proposals or methods projects requiring detailed systems study by a methods analyst, or changes in operating procedure or policy requiring a decision by the management directly concerned.

Follow-up. In our opinion, this phase of the program is the most important; otherwise, work simplification is nothing more than attending a series of meetings. Continual follow-up, such as lending a helping hand to those who need help with the more difficult proposals, preparing periodic work simplification "flyers", reports, refresher meetings, and expeditious handling of proposals, all contribute and are necessary to keep work simplification alive and producing results.

We may ask, at the end, whether or not it works. Yes, it does. It has helped to open the pipeline for ideas, up and down the line. Reaction has been favorable because of the encouragement for everyone to participate in the over-all battle against waste. It has helped develop the questioning attitude which inevitably leads to improvement. It has helped promote the concept you have heard many times before—that there is always a better way to do it. (But, do not forget, perhaps it should not have been done at all). It has also meant dollar savings and has really convinced us that eliminating waste is everyone's job.

The Great Game of Cost Reduction

by JOHN W. MILES*

COST ACCOUNTANTS have a reputation, probably deserved, for being frustrated. However, while most of us are aware of this, few realize that in the majority of cases we have only ourselves to blame for it. Instead, we blame shortsighted management, adequate profits, indifferent plant personnel, or any other convenient obstacle which seemingly causes us to knock our heads against a wall when we attempt to push a cost reduction program. We feel—in fact, we know—that we are right and, if we are right, why cannot other people see the solution as we do? This is well worth finding out and leads to the next question: how do we make them see it as we do?

Perhaps our problem becomes simpler if we compare it to the problems in another line of work which, if anything, has even more frustrations than cost accounting, namely, football coaching. It is not an oversimplification to say that the coach's primary goal is to win. In order to win he must score touchdowns; he cannot win without this positive achievement. His problem is how to score them. In any contest, whether it be one of brains or brawn or both, it is only by the barest good luck that one can hope to win by staying on the defensive. The person who wins is the one who maintains the offensive, whether in football or selling a cost accounting system. How an experienced coach maintains the offensive depends upon his diagnosis of the opposing team.

If it is generally weaker than his team, his touchdown plays will probably work. Spectacular reverses and double laterals can be used to confuse the "enemy" and result in long gains and high scores. This technique may even work on teams of equal strength but, except in desperation, it will rarely work against a team of superior strength, especially when that strength is in the defense. In this latter instance, the spectacular play will be abandoned and routine maneuvers designed for the first down to sustain a slow but steady drive will be employed.

How does this analogy relate to our problem of "selling" a cost reduction plan? It illustrates that we must analyze what defenses the opposition has set up against us and plan our maneuvers accordingly. Opposition from the top down is the difficult one for the cost accountant to combat. (Opposition from the bottom up will not be discussed here. Volumes have been written on the psychology of approaching foremen and employees and no improvement is within the power of this essay.) Because of the nature of his work and, pos-

* Supervisor, Cost Estimating & Analysis Unit, Smith, Kline and French Laboratories.

sibly, his personality, any cost reduction, however small, seems important to him. His line of reasoning is apt to be, "If we are making money now, how much more could we make under my cost reduction plan!" Moreover, as he knows, the company may not continue to be as well off as at present. Profits may be more than adequate now, the sales forecast may be optimistic now, costs may be reasonably controlled now, but will this always be true? These, and many more, are the defenses that the cost accountant must overcome in order to sell his cost reduction plan. The game has begun, the opponent's defense has been analyzed and it is now time for the first play. If we suspect that management would be cool to our recommendations for cost reduction, why not use this satisfaction with the *status quo* as the lever. It could be pointed out that if present costs are satisfactory then, by all means, let us maintain them. Let us set up charts, reports and controls based on variances from our present costs rather than data which will indicate what our costs should or could be. In this manner, the cost accountant will gain first the confidence and soon afterwards the respect from management because in effect he is saying, "You are doing a good job now. The company is benefiting from your efficient operations and I want to help you maintain your current good record." There can be no defense against that line of attack and, when the control and detailed reporting on present costs are accepted, we have our "first down" and are still in possession of the ball.

The second play may be taken out of our hands completely. Some time after many charts and reports have been filed, the receivers may notice what we knew long ago; many areas susceptible to improvement, small in themselves but considerable when taken in total. The cost accountant's advice may or may not be solicited on these areas but one day he will notice a gradual reduction in cost which must immediately be reflected and emphasized in his reports. There was no opposition to cost reduction after all. The problem was only how to supply management with the proper data to enable them to think of it themselves.

What if they do not think of it themselves? In that case we must help. Casual mention over lunch may often be enough. "I see you produced fifty units last month at a remarkably low cost, lower even than your usual cost. How did you manage that?" Point out another angle, such as, "Watch the report next month to see how the savings affect the total cost." By stimulating curiosity and arousing that desire to do better, which is inherent in everyone, the reports and minute data we supply will receive closer attention and results will soon be apparent.

We must remember what our friend, the football coach, has taught us: a wide open game with spectacular plays may appeal to the spectator, but our goal is to win the game.

Can Technical Courses Educate?

by JAMES M. CARRITHERS*

IN AN ARTICLE entitled, "The Road to Better Collegiate Education for Accounting," in the November 1959 *N.A.A. Bulletin,* Professor William C. Flewellen, Jr. of the University of Alabama points out that business is buying the product of the educational process—education. That this education imparted to the accounting graduate has a definitive value is evidenced by the fact that many firms are engaged in active programs of college recruitment for accountants.

In the light of this situation, what type of product planning have the colleges developed? Professor Flewellen indicates that education for accounting is part of education for business, that collegiate business schools have devised curricula consisting of three areas: broad cultural training, broad business background and technical specialization and, finally, that their pattern of courses is designed to accomplish the development of an educated person who learns to work with competency and has an understanding and appreciation of the experiences of all humanity.

In the development of better collegiate education for accounting, the objectives and the basic framework of courses have been carefully and soundly planned. There are, however, obstacles to the fulfillment of these objectives. Courses in the area of general business training, especially in the area of technical specialization such as accounting, are too often labeled by educators as occupational training and of little importance to the development of an educated person. In educational circles, there is an unnecessary division between liberal education and occupational training. Technical courses *can* promote an understanding and appreciation of the experience of humanity if there is competent instruction and proper planning. A stimulating article in *The Accounting Review* for October, 1959, by Professor James L. Cullather of the University of Notre Dame, entitled "Accounting: Kin to the Humanities?" presents this latter viewpoint in an excellent manner.

Faculty members in charge of the courses required of accounting students should overcome the traditional division of courses into liberal and technical or cultural and occupational. Educators can then consider all courses in terms of contributing to the finished product of the educational process—an educated person.

Professor Flewellen lists additional objectives in collegiate education, as the development in the student of the ability to work with people, to

* Ph.D., C.P.A., Chairman of the Department of Business Administration and Economics, Coe College, Cedar Rapids, Iowa.

"size up" problems, to accept responsibility, and to think with imagination. He states that technical courses may not develop these abilities. I submit that technical courses can and should be taught with major emphasis on these objectives. These objectives can be accomplished as well, or even better, in the so-called technical courses as in the general courses. No apologies in this respect need be made for courses in cost accounting, taxes, auditing, systems, etc. Business educators can be criticized for their failure to defend the educational merits of technical courses.

I should also like to comment on the criticism raised by industrial accountants that collegiate education for accounting is biased toward public accounting. The industrial accountants are partly responsible for this bias by not being active in influencing the planning of the product. Business educators are equally at fault for neglecting to balance their product of education between industrial and public accounting courses. The situation is being corrected to some extent at the present time and there are a number of noteworthy exceptions to the rule. It is vital that business educators pay more attention to planning a better balance in their product between public accounting and industrial accounting.

Collegiate education for accounting represents approximately fifty years of growth and, as such, is a relative newcomer among academic disciplines. In the betterment of its product of education, there is a definite need to develop stature. Much has been accomplished in this direction, but more effort must be forthcoming. Practicing accountants, particularly industrial accountants, must lend their resources and talents toward this goal, and those who are planning the production of educated graduates should consider the benefits available from these resources.

Beyond these Covers

Books

Bibliography of Internal Auditing

Institute of Internal Auditors, 120 Wall Street, New York 5, New York, 36 pp.

Identified both as Supplement No. 1 to the previous issue and as supplement to the regular monthly issue of the *Internal Auditor* for March 1960, this bibliography covers the three-year period to December 31, 1959. Principal subtopics under which listings appear identify auditing by functions, such as of cash, factory operations, accounts receivable, purchasing, etc. There is an author index. Both books and articles are listed.

Readings in Auditing

Johnson & Brasseaux, Southwestern Publishing Co., Cincinnati, Ohio, 1960, 638 pp.

Drawn from publications in the field of auditing, including the Accounting Review, New York Certified Public Accountant, the Journal of Accountancy and various publications of the American Institute of Certified Public Accountants, this volume is made up of some 70 pages classified into 10 sections relating to auditing standards, professional ethics, procedures, statistical techniques, management services, and the future of the profession. It is furnished with an extensive bibliography similarly classified.

Production Control

Nyles V. Reinfeld, Prentice Hall, 70 Fifth Avenue, New York 11, N. Y., 1959, 339 pp., $8.

Concerned with performance of management in a central area of operation, the author of this book presses the advantage of planning and scientific method in this readable text which, nevertheless, does not skirt difficult concepts. Sections of especial interest to accountants include, "Financial Management," "Managing and Controlling Inventories" and "Establishing Control Through Reports and Follow-up."

Organizing for International Operations

Alexander O. Stanley, American Management Association, 1515 Broadway, New York 36, N. Y., 1960, Paper Bound, 314 pp., $12.

Current interest in the large-scale "pioneering" of American industry abroad has eventuated in this publication, designated as A.M.A. Research Study No. 41. It combines a textual picture of the locations and industries involved, with many organization charts relating companies to their foreign operations. These are followed by 104 job descriptions under the section heading "defining the international manager's job."

Sampling in a Nutshell

M. J. Slonim, Simon and Schuster, 630 Fifth Avenue, New York 20, N. Y., 1960, 145 pp., $3.50.

The author is certain that all who can "count all the way to ten without removing their mittens" will find this exposition of sampling theory and methods comprehensible. However, possibly there should be warning that the simply-written text builds up from such topics as "Steps in a Sample Survey" to "Inter-penetrating Replicate Subsamples." The closing section—about one-third of the book—presents case histories in brief, among them "sample audits in the U. S. Air Force", "sampling accounts payable invoices at I.B.M." and "samples in market research."

Budgeting & Cost Analysis for Hospital Management

Leon E. Hay University Publications, Bloomington, Indiana, 1958, 205 pp.

Relating costs to physical bases and carrying on from cost analysis to general fund budgeting, with a final chapter relating to other funds common to hospitals, are the areas which occupy attention in this text. The presentation is exceptionally concrete in character, with much use of case instances and presentation of sample analyses, forms and worksheets. Cost reimbursement formulas (as between hospital insurance services and the hospitals) are likewise given attention.

Electronic Data Processing Bibliography

Lybrand, Ross Bros. & Montgomery, 2 Broadway, New York 4, N. Y., 1960, Paper Bound, 49 pp.

Subtitled "subject bibliography of periodical literature 1959" and further identified as "a management services publication," this presentation consists of listings by applications of E. D. P. and by industry of application. A list of periodicals, with addresses, occupies the concluding pages.

Automatic Data-Processing Systems

Robert H. Gregory and Richard L. Van Horn, Woodsworth Publishing Co., San Francisco, California, 1960, 705 pp.

Originating as a textbook for an executive course in automatic data-processing systems (required by the Army Ordnance Corps), this volume is intended by its authors to cover the field of business data processing in an introductory way, "requiring no previous knowledge of electronic computing systems." Following description of equipment and of programming and processing procedures, systems design and the practical problems of choosing and using the equipment in desired applications are given attention.

NATIONAL ASSOCIATION OF ACCOUNTANTS
NAA
1919